UPDATE ASSESSMENT AND COUNTRY ANALYSIS ON SECTION 118/119 OF THE FOREIGN ASSISTANCE ACT

TROPICAL FORESTRY AND BIODIVERSITY CONSERVATION IN BRAZIL

2008

Robert R. Schneider

Christoph Diewald

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report provides an update of the 2002 assessment of the status of forests and biodiversity in Brazil. It reviews the status of these concerns and the changes in the domestic and international context which create new threats and opportunities. Finally, the report recommends that USAID align its program within this rapidly changing political climate.

STATUS

Deforestation. Conversion of the Atlantic rain forest has been largely halted, and in some parts forests appear to be returning. Current estimates are that *Cerrado* deforestation rates are between 22,000 and 30,000 km^2 per year -- probably larger even than deforestation in the Amazon.

The years since 2002 have seen both a rise of the Amazon deforestation rate, to 27,349 km^2 in 2003/04 -- the second highest rate since deforestation is being measured -- and then a fall to 11,224 km^2, in the 2006/07 period - the second lowest measured so far. Overall, some 18% of what is, or once was Amazon rain forest is considered to have been cleared[1]. Over the three-year period 2004/5 – 2006/7, the deforestation rate fell by 59%--partially due to an increase in government efforts to control deforestation, and partially due to unfavorable prices for cattle and soybeans. Recent evidence indicates that with a recovery of prices, deforestation is again on the rise.

Endangered species and extinctions. A comparison of the "Red Lists" of the World Conservation Union (IUCN) for Brazil in 2000 and 2007 shows the increase in numbers of endangered species, particularly among fish, birds, amphibians and plants. There have also been downward revisions, however, such as for mammals and extinct species.

Parks. Area in Amazon conservation areas nearly doubled since 2002, bringing the total to a million hectares. For the first time in Brazil protected areas were created in areas of rapidly expanding agricultural frontier. This represented a conscious effort by government to (i) impose governance on an area where land-related violence was growing out of control, and (ii) reduce the perception that new land would be available indefinitely.

CHANGES IN CONTEXT

Changed international context. Important changes in the international context since 2002 include; (i) concern about climate change has supplanted concern over biodiversity, (ii) resources are becoming available for farmers to preserve forests rather than convert to agriculture, (iii) environmental pressure on international agribusiness has convinced agricultural producers of the need to meet environmental standards in order to retain international markets.

[1] The area of the "legal Amazon" in Brazil is about 5.1 million km^2, but this includes also non-forest areas. The original Amazon primary forest area is taken as about 3.8 to 4.0 million km^2.

New Brazilian government initiatives. The passage of the legislation on management of public forests and the creation of the Brazilian Forest Service provide the possibility of creating sustainably managed production forests, thereby removing land from speculative pressure and assuring a high degree of preservation.

Significant changes at state levels. Several states, especially Amazonas and Pará, have taken major steps to ensure protection of their biodiversity. Mato Grosso, with the help of NGO partners, is poised to participate in international trade in carbon credits.

Changed local actors, coalitions, and attitudes. Largely due to USAIDs influence, local and international NGOs are working together, with the private sector, with local communities, and with governments. The stigma of NGOs working with the productive sector has diminished dramatically.

THREATS

Threats to the existence of tropical forests and to the biodiversity that they harbor continue. The main threats are as follows:

Renewed vigor of agricultural expansion. Following several unfavorable years, prices for crops and livestock have rebounded, as has agricultural expansion. Other factors, such as reduced domestic interest rates, credit from international suppliers and elimination of foot-and-mouth disease (FMD) open new markets for Amazon beef.

Expansion of biofuels. Sugarcane for fuel alcohol is on the rise. Significant expansion into the Amazon is doubtful in view of government´s current position, but conversion of pastures to sugarcane in the south displaces cattle northwards. Oil palm shows potential for biodiesel in the Amazon.

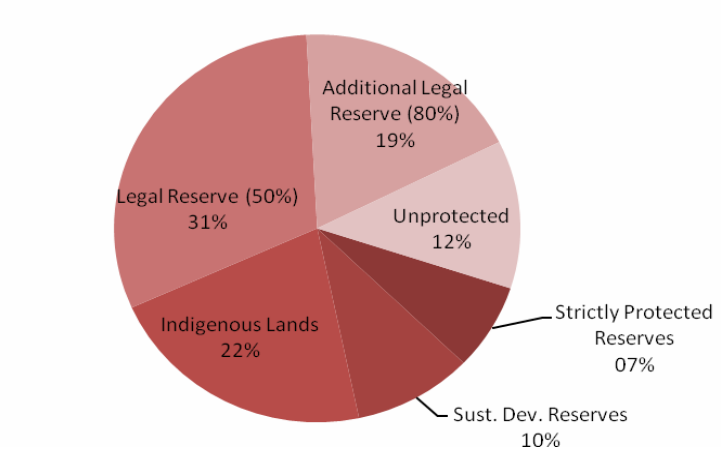
Infrastructure. Government intends to pave (or repave) existing roads and to build new ones in the Amazon. Government will also expand Brazil´s hydropower potential in the Amazon, tapping major rivers.

Climate change. Climate change may already have intensified the dry season in the Amazon, and increased the occurrence of accidental and out-of-control forest fires.

OPPORTUNITIES AND RECOMMENDED ACTIONS

The report recommends focusing USAID´s program on helping implement the Forest Code in private lands, and on protection of nature reserves and indigenous lands. Combing effective implementation of

Public and Private Protected Areas in the Legal Amazon



Brazil´s Forest Code with effective protection of existing protected areas (indigenous and biological) would help protect at least 70-90% of Amazon lands, depending on the legal reserve requirement which is currently 80% but may drop to 50% through new legislation of through adoption of state zoning legislation.

There are several reasons to focus on these land use categories. First, this is where the big numbers are — 31 to 50% of the Amazon is potentially protected in private lands, 22% in indigenous lands, and 17% in conservation areas (see chart above). Second, government institutions exist to protect these areas -- USAID actions would be to strengthen government´s existing framework, not to work outside of it. Analysis in the text shows that state environmental agencies play a key role.

Recommended actions relate to (i) strengthening state environmental institutions, (ii) helping to implement private reserves, (iii) strengthening conservation units, (iv) strengthening indigenous lands, and (v) others.

STRENGTHEN STATE ENVIRONMENTAL AGENCIES

USAID can promote public-private partnerships to strengthen state environmental agencies. It is increasingly in farmers´ interest to strengthen state environmental agencies: First, international markets demand compliance with Brazil´s environmental and social legislation. Second, Legal reserve trading is essential to achieve compliance with the Forest Code. Finally, carbon markets are emerging. For farmers to access any of these opportunities will requires a stronger environmental agency than currently exists in the Amazon. This opens up new opportunities for public-private partnerships, catalyzed by NGOS and supported by farmers. USAID already has experience in this area.

STRENGTHEN CREATION OF PRIVATE RESERVES

Strengthen farmer capacity to comply with the Forest Code. Existing activities to help farmers to comply with the Forest Code should be expanded, including help with georeferencing farm plots, development of farm plans, and coordination with the state environmental agencies.

Payments for environmental services (Zero deforestation proposal). As emphasized above, payments for environmental services are strategic for two reasons. First they directly create incentives to producers to leave private land in forest. Second, because they bring benefits to farmers, and can only function within the context of a fully functioning state environmental agency they bring political support for a strong state environmental agency.

STRENGTHEN CONSERVATION RESERVES

Strengthen Capacity to Maintain Parks and Reserves. As discussed above, over 470,000 KM^2 of new state and federal protected areas have been declared since 2002. This dramatic increase has not been accompanied by an increase in the already weak capacity for management and control of protected areas. Both the establishment and the running of conservation units require staff, skills and management capacity. All three are in short supply. USAID cannot provide staff, but it may help by strengthening the management capacity and promoting Co-management with NGOS, especially for the two thirds of new conservation areas created on state land.

Support the Chico Mendes Institute. The creation of the Chico Mendes Institute as Brazil´s "National Park Service" has occurred more on paper than in reality. Building up a new institution, warrants support. No other foreign cooperation source appears yet to have offered assistance. USAID may be able to get similar US institutions to help, or to offer support to other organizations that could help the Institute to build its new identity and strength.

Strengthen the newly established National Forest Service. Brazil´s newly-created Forest Service has a staff of only 20 people. The USFS has already signed an interagency agreement with USAID to provide much-needed support. Additional support will be necessary, much of which could be provided through USAID´s traditional NGO partners.

STRENGTHEN INDIGENOUS RESERVES.

Indigenous Peoples and Biodiversity. In view of their dominance in protected land use, strengthening the consolidation of Indigenous Lands is of priority importance. This includes strengthening both their capacity to resist invasion and to make sustainable economic use of their forests. USAID can work through existing partners.

OTHER STRATEGIC ACTIVITIES.

Disseminate the Impact of Amazon deforestation on Brazilian agriculture. Scientific evidence, much of which has been developed by Brazilian scientists, indicates that deforestation in the Amazon threatens rainfall patterns in the Centerwest and South. A concerted effort to disseminate this information widely could build support from the rural sector for reduced deforestation in the Amazon. USAID could support dissemination by appropriate institutions and individuals.

Biofuels. Assistance to biofuels could be an important area for USAID support, especially given the diplomacy of US-Brazil cooperation in this area. USAID could assist with both the politics and production of biofuels from the Amazon. The policy options and their environmental implications need to be carefully established, and the appropriate changes, to the current Forest Code, if any, scientifically established. This is the type of policy analysis which USAID has successfully supported in the past through NGO partners..

1 INTRODUCTION

As part of strategic planning documentation, USAID/Brazil is required by Sections 118 and 119 of the US Foreign Assistance Act to complete an update of the analysis of tropical forests and biological diversity in Brazil. The last assessment was conducted in 2002, and since then significant changes have occurred in the legislative framework as well as in the status of the management and conservation of biodiversity and tropical forests in Brazil. This report provides an update of the status and management of protected areas, forests and biodiversity. It also discusses current threats and analyzes significant changes in policy, legislation, governance and other relevant changes. Finally, it offers suggestions on opportunities for USAIDs engagement in Brazil.

The report is structured as follows:

- Update of factual information already contained in the 2002 report;
- A brief analysis of current threats to forests and biodiversity;
- A discussion of opportunities arising from the international context, from government action at the federal and state level, and from change attitudes among relevant actors;
- An overview of current international cooperation on forests and biodiversity; and
- A summary with emerging issues and recommendations on strategic action for USAID.

The report discusses the Amazon region of Brazil and its forests more than those of other bioregions. This reflects USAID´s main focus of support.

2 UPDATE TO 2002 REPORT

The following sections are an update to the Country Overview chapter of the 2002 report. They will not repeat facts and features that have already been adequately described there and have not undergone significant change.

2.1 POLITICAL, ECONOMIC AND DEMOGRAPHIC FACTS

In January 2003, a new government took power in Brazil under President Luis Inácio Lula da Silva from the Workers Party (PT). He was reelected for another 4-year term in 2006. Government does not have a stable majority in Congress and has to forge specific support for almost every legislative measure, often by granting significant favors to potential supporters. The Lula government has undertaken few reforms and has concentrated on poverty-reduction programs. It has maintaind the basically sound macroeconomic policies of the previous government. The latter part of its first term was characterized by heavy corruption scandals involving Congress, the President´s office and the PT party. In its second term, the Lula government is attempting to accelerate economic growth through a large number of old and new infrastructure investments and other promotional policies. The expansion of biofuels production in Brazil, particularly alcohol from sugarcane, but also biodiesel from vegetable oils has become a flagship endeavor of the government.

While the official growth stimulation program itself has made less headway than expected, economic growth has accelerated nevertheless over the last four years. Agriculture experienced a vigorous growth spurts, followed by a severe slump due to falling international prices, particularly for soybean. Agricultural growth is currently showing renewed vigor in the context of buoyant international demand.

The Brazilian population has reached about 184 million in April 2007[2], a growth of about 14 million or 8.4% over the census number in 2000., suggesting that annual growth has slowed down somewhat to around 1.2% per years. Significantly, the highest growth rates have been observed in the least densely populated Center-West (2.4%) and Northern (2.9%) regions, i.e., in the central savanna and Amazon biomes of Brazil, demonstrating the continued attraction of these regions for demographic and agricultural expansion.

Brazil remains in a backward position with regard to human development, ranking 70th worldwide, but it passed for the first time the 0.80 line of the human development index, the threshold to the list of higher human development countries (UNDP Brazil, 2007).

2.2 CLIMATE

The last five years have shown indications, but no hard evidence, of possible changes in climate in Brazil, including one of the most severe droughts on record in the Amazon region, highly unusual cyclones and tornados on the coast of southern Brazil and low discharge of the Iguaçu and Paraná rivers. First simulations of the consequences of climate change point to a future of higher temperatures and reduced rainfall in the Amazon with longer dry seasons, an even drier Northeast, and changes in the rainfall regime of the most productive agricultural regions of Brazil[3].

2.3 BIODIVERSITY AND ENDANGERED SPECIES

Brazil remains one of the world´s mega-biodiversity countries. Unfortunately, threats to this diversity continue, with loss of habitat and hunting/poaching as the main reasons. In Table 1 below, a comparison of the "Red Lists" of the World Conservation Union (IUCN) for Brazil in 2000 and 2007 shows the increase in numbers of endangered species, particularly among fish, birds, amphibians and plants. Interestingly, there have also been downward revisions, such as for mammals and in the list of extinct species.

[2] Instituto Brasileiro de Geografia e Estadística, Contagem da População 2007
[3] Instituto Nacional de Pesquisas Espaciais (INPE), Cenário climático futuro: avaliações e considerações para a tomada de decisões, 2006

Table 1: Status of Endangered Species in Brazil

Category	Endangered, Threatened and Vulnerable Species		Extinct Species	
	2000	2007	2000	2007
Mammals	79	73	0	0
Birds	113	122	2	1
Reptiles	22	22	0	0
Amphibians	6	25	0	1
Fish	16	66	0	0
Invertebrates	34	40	5	5
Plants	338	382	15	6
Total	608	725	22	13

Source: IUCN (http://www.iucnredlist.org/info/tables/table5, December 2007)

2.4 Tropical Forests and Deforestation

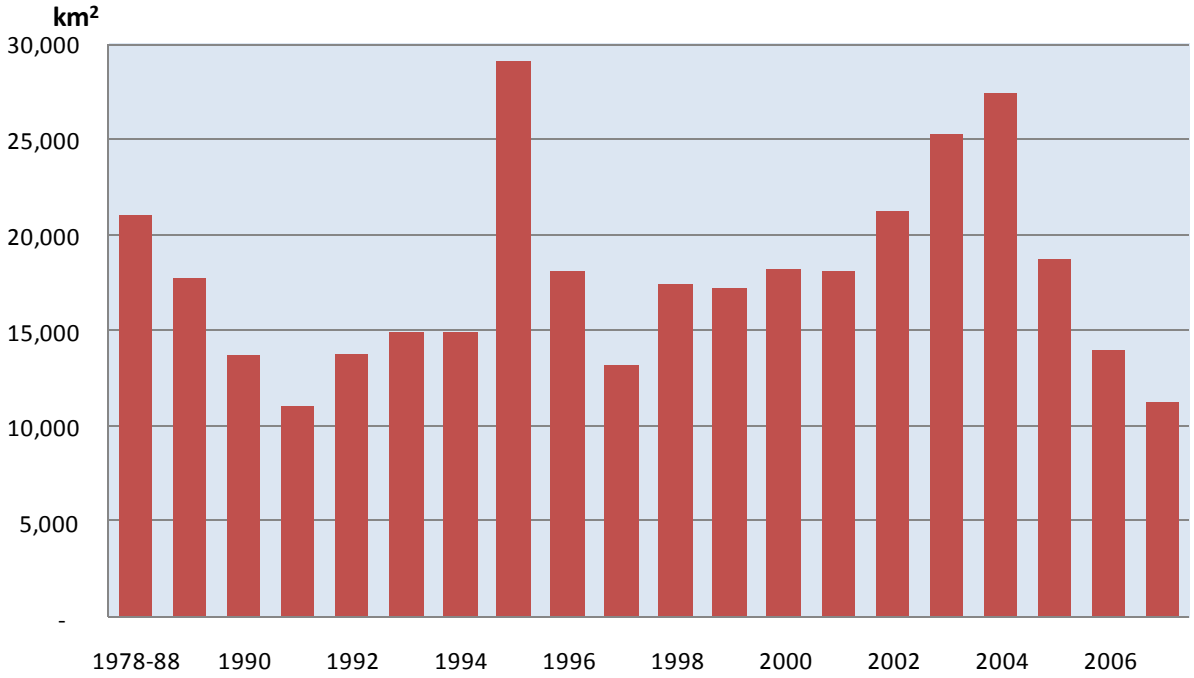
About two-thirds of Brazil´s territory are or were once covered by forest: the Amazon rain forests, large parts of the central Cerrado savannas, the eastern Atlantic rain forests (some of them reaching into the interior of the continent), and the dry (seasonal deciduous) Caatinga forest in the Northeast. They form a highly significant part of the world´s remaining tropical forests, important for their biodiversity and their functions in regional and global climate. But very little of the Atlantic rain forest is left, some 18% of the Amazon rain forest has been cleared, and more than half of the original Cerrado vegetation has been lost, as has a large part of the Caatinga[4].

Conversion of the Atlantic rain forest for urban and agricultural use seems to have been largely halted, and in some parts these forests even appear to be returning. The environmental services of the Atlantic Forest for urban centers (water supply, erosion control, local climate, recreation, etc.) seem to be increasingly recognized by policy makers and the population at large.

Deforestation of Amazon forest is closely monitored by the Brazilian government. The record since the beginning of measurements (1977/88) is as in Figure 1 below:

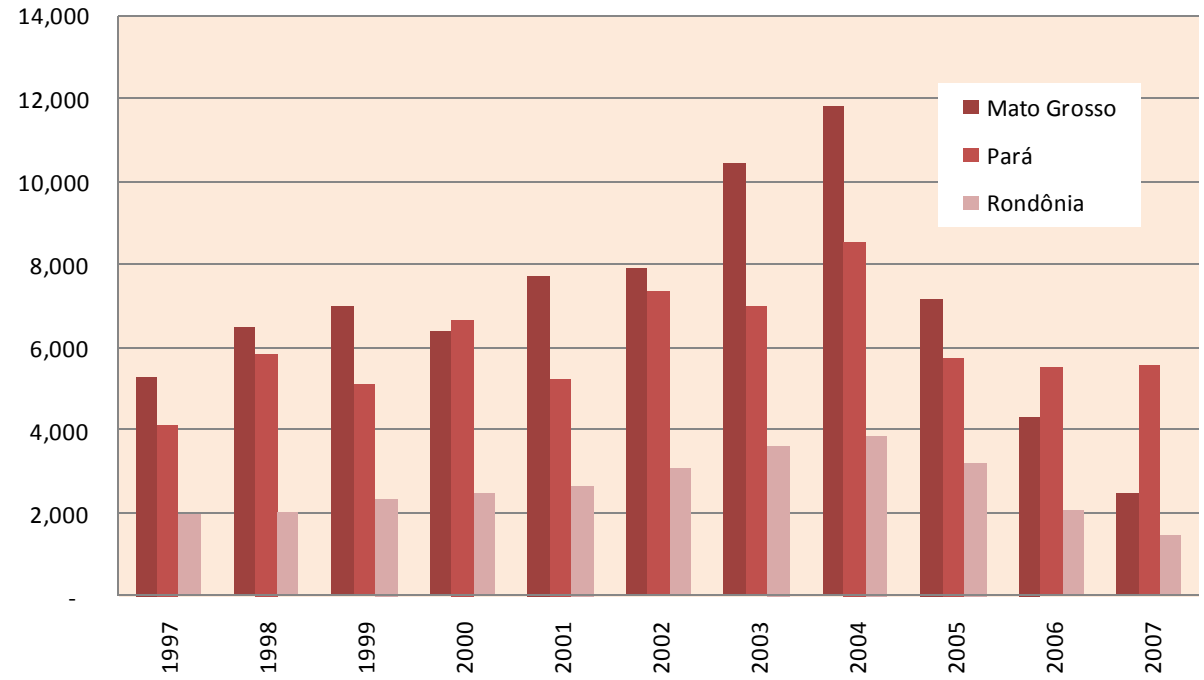
[4] The degree of deforestation is quite well known for the Amazon rain forest, due to the special government effort in measuring it annually from satellite data. Existing fragments of Atlantic forest have also been quite accurately recorded and can be compared to the original extent of that biome. Information in terms of measured conversion of land use for the Cerrado and the Caatinga forests is poor in comparison.

Figure 1: Annual Deforestation in the Legal Amazon 1978 – 2007 (in km^2)



The years since 2002 have seen both a rise of the Amazon deforestation rate, which reached its maximum in the period 2003/04 with 27,349 km^2 -- the second highest rate since deforestation is being measured -- and then a substantial fall, reaching a rate of 11,224 km^2, in the most recent period 2006/07 - the second lowest measured so far. The three federal states with the highest deforestation have been – and continue to be – Pará, Mato Grosso and Rondônia. However, the fall in the rate of deforestation was much more pronounced in Mato Grosso than in Pará as shown in Figure 2:

Figure 2: Annual Deforestation in Mato Grosso, Pará and Rondônia States 1997 – 2007 (in km^2)



Overall, some 18% of what is, or once was Amazon rain forest is considered to have been cleared[5]. Part of these areas have since been abandoned and are in various stages of spontaneous regeneration. In comparison, only some 7-8% of what was once the Atlantic forest is still left.

Overall, the deforestation rate fell by 59% over the three-year period 2004/5 – 2006/7. Recent signs of fires and clear-felling indicate, however, that deforestation is on the rise again, for the current period 2007/08.

Estimates of the Cerrado biomes are less well established. It is estimated that about 55% of the *Cerrado* has already been lost, with only 22% of the original *Cerrado* vegetation cover remaining in its original state, and with a mere 9% of this in fragments larger than 1,000 ha. Current estimates are that *Cerrado* deforestation rates are between 22,000 and 30,000 km^2 per year[6], i.e., probably larger than deforestation in the Amazon.

2.5 Protected Areas

The concept of protected areas has changed recently in Brazil. While earlier only biodiversity conservation units were counted as protected areas, the term now also includes "indigenous lands" and other lands reserved for certain traditional communities[7]. In terms of expanding conservation units, Brazil has made significant advances during the last five years, particularly in the Amazon region. As shown in Table 2 below, in 2007, Brazil had 728 federal and state conservation units of various types covering an area of almost 1.3 million km^2, the equivalent of 14.7% of the country´s territory.

Table 2: Number and Area of Conservation Units in 2007[8]

	Federal		State		Total	
	Nr.	Area in km^2	Nr.	Area in km^2	Nr.	Area in km^2
Strict Protection Units	126	331,334	264	148,241	390	479,575
Sustainable Development Units	164	364,915	174	450,599	338	815,514

[5] The Legal Amazon is that part of Brazil defined by law to constitute the Amazon region, within which certain benefits are available to states and private sector. The area of the "Legal Amazon" in Brazil is about 5.1 million km^2, but this includes also non-forest areas. The original Amazon primary forest area is taken as about 3.8 to 4.0 million km^2.

[6] World Bank, Project Brief, GEF Sustainable Cerrado Initiative, 2007

[7] Presidential Decree 5758 of 2006.

[8] Source: Ministry of Environment data of 2007 used in the publication - Pilares para o plano de sustentabilidade financeira do sistema nacional de unidades de conservação, Série Áreas Protegidas No. 6, 2008, kindly made available by The Nature Conservancy. The table shows units mapped and identified in accordance with the Legislation for National System of Conservation Units, including those not yet officially entered into the cadastre of UCs.

Total	**290**	**696,249**	**438**	**598,840**	**728**	**1,295,089**

Some 834,000 km^2 – almost two-thirds -- of the total of 1.3 million km^2 of conservation units is located in the Brazilian Legal Amazon. In all of Brazil, 55 federal conservation units, with an area of 192,000 km^2, were created after 2002, i.e., during the Lula government, an increase of 23% in numbers and 38% in area, and to 40% in the form of strictly protected conservation units (parks, biological reserves, ecological stations), and 60% as National Forests and Extractive Reserves.

The bulk of the new federal areas after 2002 are located in the Amazon region (171,000 km^2). The Amazonian federal states created an even larger area of new conservation units after 2002: some 303,000 km^2. The increase in conservation units in the Amazon since 2002 amounts to about 50% over the level before 2002. As a result, almost 17% of the Legal Amazon (and an even higher proportion of its primary forests) is now within a federal or state conservation unit of one form or another: 7.2% in strictly protected units, and 9.5% in sustainable development units.

In addition, the Amazon contains also the largest portion of Brazil´s **indigenous lands**: some 1.08 million km^2, or about 21.6%. Virtually all of the indigenous lands in the Amazon have been delimited and most have been demarcated. Overall, 38% of the Legal Amazon is in public land with a protected status of one kind or another. An old problem of protected areas in Brazil persists, however: the significant overlap of conservation units with indigenous lands, which is estimated to amount to about 177,000 km^2.

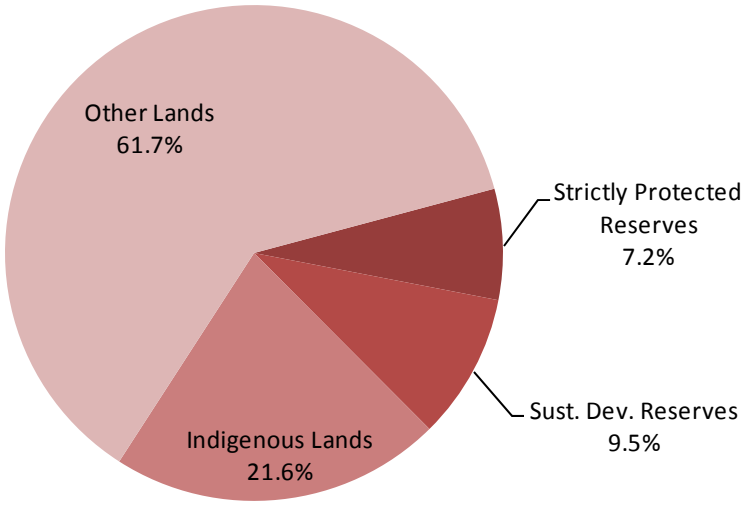


Figure 3: Public Protected lands in the Amazon

While in earlier governments new conservation units were mainly created in remote and less threatened areas, the current government created, for the first time, new conservation units at the agricultural frontier in the Amazon, as a strategic instrument to get some control over the expansion of that frontier in the so-called “deforestation belt”, in the states of Amazonas, Pará and Mato Grosso.

3 CURRENT THREATS TO FORESTS AND BIODIVERSITY

Threats to the existence of tropical forests and to the biodiversity they harbor continue in Brazil, although their relative importance may have changed. Current threats are characterized briefly as follows:

Renewed vigor of agricultural expansion. Following several unfavorable years, prices for crops and livestock have rebounded, bringing renewed vigor to the process off agricultural expansion. Other factors, such as reduced domestic interest rates, credit from international suppliers and elimination of foot-and-mouth disease (FMD) is opening new and higher-value markets for Amazon beef.

Expansion of biofuels. Sugarcane is clearly on the rise on Brazil as highly efficient raw material for fuel alcohol. Significant expansion of sugar cane into the Amazon is doubtful in view of government´s current position, but conversion of pastures to sugarcane leads to displacement of cattle northwards. There is high potential for biodiesel from oil palm in the Amazon. Legislation currently in draft may encourage oil palm production on currently deforested land for farmers with a shortfall in forest reserve land[9].

Infrastructure. Government has expressed its intentions to pave (or repave) existing roads and to build new roads in the Amazon. This has not yet taken place as originally announced, but intentions remain. Government also is about to expand Brazil´s hydropower potential tapping major rivers in the Amazon.

Climate change. Climate change may already have intensified the dry season in the Amazon, and may have caused the major drought in 2005, increasing the occurrence of accidental and out-of-control forest fires.

3.1 CATTLE RANCHING

According to the 1996 agricultural census, cattle ranching is responsible for about 80 percent of Amazon land cleared and in economic use[10]. Given the tremendous recent expansion in cattle in the Amazon this figure has certainly not decreased in recent years. The increase in cattle in the Amazon is due to a number of factors, most important of which are (i) improvements in transportation, (ii) displacement of pasture in the South, Southeast and Center-west by soybeans and biofuels crops (principally sugar cane), (iii) control of FMD, (iv) “mad cow disease” in Europe and US, and (v) implicit and explicit subsidies through credit and land.

The Brazilian cattle herd has expanded substantially over the last decade, and virtually all of this growth has occurred in the Amazon. Studies indicate that most forest clearing was on large plots meant for

[9] Reserve land is the private land required by the Brazilian Forest Code to be kept by every agricultural establishment in Forest (the Forest reserve. The reserve requirement varies by biome and in the case of the Amazon it is 80% unless the state has an agro-ecological zoning plan approved by the National Commission for the Environment (CONOMA), in which case the reserve ratio may be lowered to 50 percent.
[10] Chomitz and Thomas (2001).

cattle raising[11]. Brazilian net beef exports have more than quadrupled between 2000 and 2006. Growth of the cattle herd in the Amazon has been driven by gains in control of FMD and improved technology in animal breeding and pasture management.

Given the massive revaluation of the Brazilian Real vis-à-vis the US dollar since 2004, beef exports have probably been less than what they would have been with a stronger dollar, and domestic consumption was stimulated by lower prices in Real. On the other hand, concerns with BSE disease in Europe and the US favored Brazilian beef supplies. According to IMAZON (Baretto, Pereira, and Arima, 2008), Brazil´s cattle herd increased from 147 million head to 206 million head between 1990 and 2006. Eighty percent of this increase took place in the Legal Amazon where the herd grew from 26 million to 73 million. Cattle numbers grew in all states, although Mato Grosso and Para were the major producers—totaling 60% of the Amazon herd.

Ranching in the Amazon is becoming big business. Exports from the legal Amazon increased from 5% of Brazil´s total (10.000 t) to 22% (264.000 t). Over the period 2000 to 2006 the value of Amazon exports increased from US$30 millions to US$ 688 million.

Pasture is estimated by IMAZON (*op cit)* to have grown by 25 million ha over the 2000-2006 period, while deforestation over the period was 31 million ha. Looking at the changes in area in other crops such as soybeans and corn, IMAZON estimates that new pasture represents some 75-81% of total deforestation over the period.

Animal health concerns have been an important factor. Control of FMD in the Amazon began in 2000, when the World Animal Health organization (OIE) liberate Mato Grosso areas as FMD-free with vaccination. Other Amazonian areas followed and by 2007 76% of the national herd and 78% of the Legal Amazon herd were in FMD-free areas. Outbreaks of FMD in southern border areas of Brazil have further increased the movement of the Brazil cattle herd towards the Amazon. In addition Brazil´s international competitors have little capacity to expand to meet the growing world market. Europe, US and Canada exports are limited by mad cow disease, and Argentina and Australia have nearly reached their maximum limit for free-range pasture.

Despite recent attempts to control illegal deforestation, (section VI) numerous public policies continue to create incentives for deforestations (Baretto *et al*, *op cit*, Smeraldi and May, 2008). Permissive land policies generate an incentive to convert public land into private squatters claims, and exerts downward pressure on land prices. In 2003 there were 42 million ha in squatters claims. This free land is an enormous subsidy to ranching in the Amazon. Subsidized interest loans totaled R$ 1.89 billion between 2003 and October 2007, with interest more than 20 percentage points below market rates.

Consequences to perpetrators of illegal deforestation continue to be nil. Although between 2001 and 2004 fines went up 180%, actual collections continue to be insignificant.

[11] Margulis, S., Causes of Deforestation of the Brazilian Amazon, World Bank, 2004

Planned government infrastructure and disease control will continue to put pressure on the Amazon forest. Arima *et al* estimated in 2005 that control of FMD and planned infrastructure expansion by government would increase the area economically viable for cattle ranching by 60 million ha.

3.2 CROPS

Over recent years, **soybean** cultivation has been blamed as a *direct* cause of deforestation -- rather than indirectly by taking over grazing areas and displacing cattle and pastures into the forest. While this may be true to some limited extent, it is rather unlikely as large major direct force of forest clearing, as mechanized soybean requires certain topographic land qualities as well as expensive de-stumping of cleared land. With conversion of pastures to sugarcane (for alcohol) in the Southeast and Center-West, and to soybean in the Center-West, it is indeed more likely that cattle operations will be pushed north and westwards with consequent clearing of forest land. Thus sugarcane and soybean are probably more an indirect than a direct cause of deforestation.

The actual growth of soybeans has been minimal compared to the growth of pasture. Compared to the 25 million ha of pasture growth over 2000-2006, that of soybeans was only 0.4 million ha (IBGE SIDRA, 2008). Schneider *et al* (2002) argue that soybeans expansion in the Amazon is limited by climatic and topography. Expansion of soybeans in the Cerrado ecosystem faces few agronomic constraints, however, and experienced a growth of 4.7 million ha, 56% of the total growth in soybeans in Brazil over the period.

A study under the Large-Scale Biosphere-Atmosphere research program on the effect of infrastructure projects (roads, hydro plants) on the potential expansion of soybean in a study area of 2.1 million km^2 in the border region of Bolivia-Brazil-Peru, in the Southwestern Amazon Basin, estimated that 853,000 km^2 (or 40% of the area) have high rent potential to raise soybean crops. These include forest lands (57%), agriculture lands (25%), and grasslands and savannas (15%)[12].

A major unknown is the future of **palm oil** as raw material for biodiesel production. A recent World Bank study indicates that, oil palm is the most competitive among all feed stocks for biodiesel. There is now considerable pressure in the Brazilian Congress to make oil palm eligible to recover Legal Reserve land, at least for land legally cleared prior to 1996.[13] Environmentalists are divided with regard to the danger this new development presents for the Amazon ecosystem.

[12] Vera-Diaz, M.C. Reid, J., Soares Filho, B., Kaufmann, R.K., Nepstad, Daniel, C., Fleck, L. Effects of Energy and Transportation Projects on Soybean Expansion in the Madeira River Basin, draft for discussion, at http://conservation-strategy.org/files/Madeira%20soy%20final_draft2.pdf

[13] Actually the Law would permit oil palm to qualify as legal reserve for deforestation which was legal prior to the increase in the legal reserve from 50% to 80% in 1996. That is, if a farmer had deforested 50% of his (non permanent preservation) land in 1996 he could make up the difference with oil palm. Had he deforested more, or deforested greater than 20% subsequent to 1996, he would have to make up the difference in native species.

3.3 INFRASTRUCTURE

The Lula government proposed already in 2003 the paving of the BR-163 highway through the heart of the Amazon (from Cuiabá in Mato Grosso state to the port of Santarém on the Amazonas river in Pará state), and the reconstruction of the virtually overgrown road that links Rondônia to Manaus (BR-319). Neither project has been started so far. While paving of the BR-163 has reasonable justification in reducing transport cost for soybean and other goods traversing the forest, and while it has been accepted by civil society organizations and environmentalists and adopted as a demonstrative example for managing the conflict between environmental, social and economic objectives, there is little support for the reconstruction of BR-319, given that the Madeira river waterway already addresses transportation needs in the Porto Velho – Manaus corridor.

Furthermore, there are plans to construct a highway from the western town of Rio Branco (Acre state) to the Pacific coast (port of Ilo in Peru) to transport soybean from the Brazilian Center-West and Bolivia and perhaps beef.

In addition to road projects, the government has proposed two major hydropower plants on the Madeira river, near the Bolivian border (Santo Antônio and Jiraú dams, 3150 and 330 MW, respectively), and a mega-hydro scheme on the Xingu river in Pará state, called Belo Monte (11,800 MW). The former two have already received preliminary environmental licenses, and preparations are underway to get construction started soonest. The process for the Belo Monte hydro plant on the Xingu river is not that far advanced. Significantly, the two dams on the Madeira river (plus one more planned by Bolivia) will also facilitate the creation of an extensive waterway on the Brazil-Bolivia border.

The impact of major (inter-state) roads though the rain forest has been clearly established by now – they lead to deforestation to a depth of 50 km to the left and right of the highway, unless government succeeds in setting aside these areas ahead of opening the roads. Paving of earth roads has a similar impact. Waterways on major rivers tend to be less detrimental to the forest. The potential threat of paving BR-163 has been clearly recognized by all concerned, but the mere announcement of such plan by government in 2003 already led to a run for land and increased burning along the highway, before government had been shield roadside lands from invasion. Nevertheless, BR-163 is the first case of a road project in the rain forest where planning has been applied to mitigate the "usual" environmental and social consequences of road building or paving.

The above-mentioned study on the impact of road and power projects[14], came to the conclusion that "future navigation mega-projects and road improvements in the Bolivia-Brazil-Peru border region in the Southeast Amazon Basin have significant potential to spur soybean expansion by reducing transport costs. The area considered highly profitable for planting would increase by between 6,594 (1 percent) and 142,749 km^2 (17 percent), depending on the projects included in the simulation". Some of the scenarios investigated in the study included the BR-163 paving. The study (which was concluded before

[14] Vera Diaz, M.C. et al., op. cit.

IBAMA gave the first environmental license) also highlights other potential negative impacts from the hydropower dams.

3.4 Climate Change

Current studies on the impacts of climate change on the Amazon rain forest seem to predict, with or without further deforestation, a rise in temperatures, a lengthening of the drier season and a reduction in rainfall during these drier months, as well higher susceptibility to forest fires[15]. Interestingly, deforestation is predicted to have quite similar consequences by itself – a warmer, drier, more fire-prone rain forest with a tendency to savannization. The impact on biodiversity would be deleterious whether this is caused by global climate change or regional change due to deforestation.

One of the most severe droughts on record in the Amazon, that of 2005, may have signaled already the beginning of such climate change, but meteorologists cannot confirm this with certainty, because such a drought, although extreme, is also consistent with the frequency statistics of the last 100 years.

Changes in the regional climate of the Amazon, with reduced forest cover and rainfall, will likely also have a severe impact on the climate in other regions of Brazil, most importantly on the core agricultural regions of the Center-West and Southeast, possibly also on the South. Rainfall in those regions is heavily determined by humidity generated by the Amazon forest and carried south and east. This latter impact is potentially a striking argument for rain forest conservation in Brazil´s best own interest. Climate change in the Cerrado biome, with reduced rain fall, would also lead to adverse impacts on the extremely rich biodiversity of that biome, a global hotspot in the definition of Conservation International.

4 Opportunities for Conservation and Sustainable Development

4.1 Overview

The previous section identified significant new threats to biodiversity in the Amazon. In this section we provide an overview of the changes which have taken place since 2002 which militate against these threats. These points are developed in more depth in the subsequent sections of this chapter.

Changed international context. There have been four basic changes in the international context since 2002: (1) concern about climate change has largely supplanted concern over biodiversity, (2) resources are becoming available to create incentives for farmers to preserve forest rather than convert to agriculture, (3) environmental pressure on international agribusiness has convinced agricultural producers that in order to retain international markets they must meet environmental standards, and (4), the emergence of biofuels markets and biofuels technology creates opportunities as well as threats.

[15] Marengo, J. A., Mudanças Climáticas Globais e seus Efeitos sobre a Biodiversidade, Caracterização do Clima Atual e Definição das Alterações Climáticas para o Território Brasileiro ao Longo do Século XXI, Ministerio do Meio Ambiente, Brasilia, DF, 2006

New Brazilian government initiatives. The passage of the Forest Concessions legislation and the creation of the Brazilian Forest Service provide the possibility of establishing sustainably managed productive forests; thereby removing land from speculative pressure and assuring a high degree of preservation. Numerous other innovative measures were implemented over the past three years.

Significant changes at state levels. Several states, especially Amazonas, and Pará have taken major steps to ensure protection of their biodiversity, both at the institutions and protected areas level. Mato Grosso has shown increasingly willingness to enter into dialogue with NGOs and may prove to be an important player in promoting international trade in carbon credits.

Changed local actors, coalitions, and attitudes. Largely due to USAIDs influence, local and international NGOs are increasingly working in partnership with each other, with local communities, and with governments. The stigma against NGOs working with the productive sector has diminished dramatically.

4.2 CHANGED INTERNATIONAL CONTEXT

The new opportunities created by the changed international context are elaborated below:

4.2.1 CLIMATE CONCERNS DOMINATE BIODIVERSITY CONCERNS

Scientific and media attention to global warming has carried climate change to the forefront of the environmental agenda. Even for environmental scientists for whom biodiversity is the primary concern, the threat of climate change to species habitat is gaining importance. The goal of reducing climate change joins far-ranging and disparate constituencies. In Brazil, agro-business is gradually becoming aware of the possibility that Amazon deforestation may cause decreased rainfall in the agriculturally important Center-West and Southeast regions[16]. In practical terms this joining of wide-ranging constituencies for climate change creates a large tent within which biodiversity protection gathers supporters.

4.2.2 MONEY BECOMING AVAILABLE TO COMPENSATE FOR REDUCING EMISSIONS FROM DEFORESTATION AND DEGRADATION (REDD).

Global warming has brought increased attention to the need to reduce emissions from deforestation, and has opened new possibilities for financial incentives to maintain standing forests. The UNFCCC Conference of Parties agreed at COP11 in December 2005 to open up a two-year period of discussion about the potential for Reducing Emissions from Deforestation and Forest Degradation (REDD). There have been subsequent REDD-related events at COP12 in Nairobi (November 2006) as well as several other specialized events over the past 6 months. The topic has gained a much higher profile since the Stern Report, which was released in October 2006, and found curbing deforestation to be a highly cost-effective way to reduce greenhouse gas emissions and to have the potential to offer quickly significant reductions. The Stern Report also called for compensation from the international community to take account of the opportunity costs of alternative uses of the land, the costs of administering and enforcing

[16] The impact of Amazon deforestation on the climate, particularly on rainfall, of central and southern Brazil has not been firmly established, but is currently being studied by specialists.

protection, and managing the transition. Stern believes that a REDD fund could be established which could grow to up to US$ 15 billion a year.

4.2.3 *Proposed WB Forest Carbon Partnership and the Global Forest Alliance (GFA).*

At present there are two broad types of funding, those linked to the Kyoto commitments framework, and so-called `voluntary´ funds, for individuals and institutions operating outside the Kyoto framework. At present payments for REDD are not available within the Kyoto framework, although the World Bank is mounting a Forest Carbon Partnership and a Global Forest Alliance (GFA), aiming at developing the capacity to reduce emissions from deforestation, test the mechanism and set the stage for a post-2012 regime for forest carbon payments. This fund is expected to be some US$ 300 million. Noteworthy for Brazil, this fund would require that participating countries establish a credible reference scenario and options to reduce emission below the reference level. This reflects a degree of commitment that Brazil, (at the National level) has not been willing to accept. The position of the Brazilian government in recent meetings on the Kyoto Protocol (Bali 2007) may indicate some degree of flexibility, however.

4.2.4 *Opportunistic market for private compensatory programs outside the Kyoto framework*

Voluntary funds such as the Chicago Climate Exchange (CCX) are more accessible by sub national level of government. Indeed the state of Amazonas has been actively negotiating with these funds. These funds, which do not require national level commitments, have grown dramatically in recent years, reaching an estimated US$ 100 million in 2006, and are expected to quadruple by 2010.[17]

4.2.5 *International agribusiness under environmental pressure.*

Following an extremely successful 2006 campaign against Amazonian soybeans, spearheaded by Greenpeace and targeted at Cargill, McDonalds and the European supermarkets and fast food industry, in July, 2006 the Brazilian Association of Vegetable Oils (ABIOVE) and the National Association of Cereal Exporters (ANEC) announced a two years moratorium on purchases of soybeans from land deforested later than July, 2006 and located within the Amazonian Biome. During this time it was expected that producers would become fully compliant with the Brazilian Environmental and Social legislation including the requirements under the Forest Code requiring Legal Reserve set-aside, and Areas of Permanent Preservation, as well as legislation regarding rural workers´ rights. This signaled concretely, for the first time in Brazil what many industry spokesmen had been warning: globalization makes future access to international markets conditional upon good environmental practice.

4.2.6 *International demand for biofuels*

The international biofuels market, including recently established cooperation between the US and Brazil is an additional force potentially impacting upon Brazilian ecosystems. A memorandum signed March 9 by U.S. Secretary of State Condoleezza Rice and Brazil Foreign Minister Celso Amorim during Bush's visit to Brazil pledged closer cooperation on researching production of energy from alternative sources. The

[17] State and Trends of the Carbon Market, 2007, (*World Bank, May, 2007)*

accord also promotes alternative fuels in the region and develops industry-wide standards and codes that could lay the groundwork for a global biofuels market.

The overall environmental effects of biofuels are, at this time, uncertain. As mentioned above significant direct expansion of sugar cane into the Amazon appears doubtful, in view of government´s current position. However, the direct effect on the Cerrado as well as the indirect effect of cattle displaced from the south is already being felt. In the Amazon, the potential for biodiesel from oil palm is high, and legislation currently in draft may encourage oil palm production on *forest reserve* land. This change would represent a improvement in carbon storage in the Amazon to the extent that it results in replacement of pasture or abandoned land with perennial oil palms. To the extent, however that these palms were planted in areas which would otherwise have been planted with native species it represents a net loss of biodiversity, albeit of relatively low quality[18].

4.3 New Federal Government Initiatives

There have been important changes in policy and legislation at the federal government level. A Program for a Sustainable Amazon (PAS), formulated in 2003 but not yet adequately discussed with state governments, civil society and the private sector, has been touted as guide for the development of the region and conservation of its natural resources. It, has, however remained largely on paper---perhaps because of lack of specific and concrete proposals, and perhaps of lack of interest on the part of Ministry of National Integration, which has lead responsibility.

Importantly, there is still no national "vision" of what the Amazon region should look like some decades from now, and the federal government in power since 2003 appears to have somewhat different attitudes towards the role of government from previous administrations. It has a stronger belief in the role of government and in its ability to do things without partnerships. There appears to have been a decrease in the willingness to cooperate with civil society organizations and to share responsibility, although it continues to be open to dialogue. Cooperation with foreign partners, which was quite strong during the Nineties, has also diminished visibly, at least in the field of biodiversity and forest conservation.

Four tendencies at the federal level deserve to be highlighted:

The control of deforestation in the Amazon has become more of a government concern, and is more effective and efficient. The use of economic instruments is gradually gaining ground, alongside traditional command-and-control mechanisms, as is the dialogue with the agricultural lobby representing ranchers and commercial agricultural interests.

The economic use of the rain forest is becoming more important through legal exploration of timber and other forest products under concessions, seen as another strategy to conserve the standing forest.

[18] The oil palm, Elaeis guineensis, is not a native species of the Amazon biome, its origin is in Africa.

At the same time, government is promoting large infrastructure investments, such as regional roads through rain forest and hydropower schemes on Amazon rivers, and in one case, at least, is attempting to take into account social and environmental concerns and consequences at the regional scale.

4.3.1 Control over Deforestation

The current government has made significant efforts, since 2003, to strengthen both monitoring and control of deforestation in the Amazon (but not in other Brazilian biomes, such as the Cerrado). Since 2002, government has expanded its **monitoring capability** substantially, including now (a) the interpretation of satellite images by computer software, rather than through manual plotting and digitization, which allows much faster mapping and estimation of the extent of deforestation; and (b) the publication of fortnightly deforestation maps and reports (DETER system), at a higher resolution than annual deforestation mapping, which enables swifter law enforcement action by IBAMA, Federal Police and state agencies. The technological base for deforestation monitoring has been developed and is being maintained by the Brazilian Space Research Institute (INPE). It represents easily the largest land use change observation program in the world, covering about 5 million square kilometers (two million square miles).

The government drafted in 2003 and is since implementing a **plan to combat deforestation** in the Amazon. It has upgraded the remote sensing and mapping systems in the region, as described above, providing quicker, more up-to-date information on deforestation. Actions were taken to increase the presence of government in the areas most threatened by deforestation, through (1) strengthening the staff, infrastructure and equipment of the national environmental agency, IBAMA, including the creation of new bases across the Amazon, (2) increasing fines significantly for illegal forest clearing, and (3) strengthening law enforcement through strategic partnerships with state and federal police, the military, and state environmental agencies. These measures have undoubtedly contributed to the reduction in deforestation over the last three years, but economic factors have probably been more important.

More recently, a presidential decree (December 2007) mandates **new strategic actions**, to be carried out by several federal agencies--principally IBAMA and the national land reform and colonization agency (INCRA)-- with the objective of strengthening monitoring and control of deforestation in the 36 municipalities in the Amazon, where forest clearing had accelerated the most. These actions consist of the following

INCRA will promote a complete rural cadastre in the selected counties, both as a preventive measure and to bring order to the chaotic land tenure situation. All landholders will be called to register or re-register their lands (“cadastre”) , based on geo-referenced maps/images to be provided by them, under penalty of having any existing cadastre or title suspended or cancelled and of being unable to sell, transfer or lease the land. In this way, the authorities can determine who exactly is responsible for any deforestation detected in these counties, and any landholder (owner or occupant) may be notified of the consequences of illegal clearing of the holding. On the other hand, a “positive list” of holdings being monitored will be published that are current as to their obligations under forest law. The market will

have incentives to acquire products from holdings on the positive list. New forest clearing will only be allowed in those counties if a holding has been certified by INCRA to have a precisely recorded perimeter and unequivocal property rights.

Holdings may have the agricultural use of their land embargoed ("negative list") if they show illegal land clearing. The embargo implies prohibition of any sales of products from the land, blocking of credit from official banks, cancelling of registers with environmental, fiscal and health agencies, and strong fines. The purchasing of and trade in products from holdings that disregard the embargo will be a violation of federal law and will be audited in regional processing facilities. This policy is intended to create the conditions for the market (international beef purchasers, for example) help enforce environmental and forest law.

To fight the perception of impunity, the 150 worst cases of illegal deforestation in 2006 and 2007 will be subject to special investigation, prosecution and administrative and penal sanctions. Stronger intelligence and auditing measures will be implemented. On the other hand, counties with more than 80% of their territory under valid cadastre and with low deforestation rates will be eligible for specific positive incentives (fiscal or otherwise). Appropriate economic alternatives for land use, measures to recover degraded lands and to increase the productivity of agriculturally used land will be offered in all concerned counties.

Although it was not an initiative by the federal government itself, it is worth mentioning also, in this context, the drafting of a ***Pact for Valuing Forests and the End of Deforestation in the Amazon*** in October 2007. It proposes the gradual elimination of deforestation by 2015, the payment for environmental services of forest maintained, instruments to optimize the use of deforested areas, strengthened monitoring, control and law enforcement, and better "forest governance" over public lands in the Amazon. It had been hoped that the pact would be supported by federal and state governments, private sector and civil society organizations. In the end, the pact was signed only by nine major social and environmental NGOs and morally supported by some state governments. It was not signed by the representations of social movements in the Amazon (for lack of active participation in the drafting) or by the federal government, as it would be inconsistent with the law to reduce *all* deforestation to zero, even legal clearing. The Minister of Environment was, however, present at the signing.

The pact, as signed, promotes the creation of a major fund to compensate those who make proven efforts to reduce deforestation. It establishes the principle that the cost (presumably the opportunity cost) of forest conservation and the cost of reducing deforestation must be shared by the international community and Brazil. A highly preliminary proposal of such a fund was annexed to the pact, and the financial requirement was estimated at about R$1 billion per year until 2015. Interestingly, the Brazilian Congress might have approved funds in the order R$1 billion to combat deforestation over a three-year period, had the continuation of the controversial CPMF tax not been toppled in late 2007. Brazil has proposed the creation of a large fund at the Bali conference on climate change in December 2007, but has not given any details about it.

The federal government maintains that public funds shall not be used to compensate any private interests for keeping forest standing or any other environmental services. Rather, producers should pay producers, without involving public money. It has not developed a clear concept of such fund, and in fact has no concrete proposal for payment for environmental services, except perhaps the PROAMBIENTE program where repayment of credit to smallholders would be reduced to account for environmental services, without any source as yet to finance this credit rebate.

It has been a federal policy since the Constitution of 1988 to ***decentralize environmental management*** **and protection** to the states. Most of the Amazon states have since signed agreements ("*pactos federativos*") with the federal government in which they take over certain functions from the same, including responsibility for control and enforcement under the Forest Law (forest clearing and logging). Not all states are effectively able to exercise that control and thus IBAMA remains active in those states. The federal government now sees a need to have states to agree to a pact concerning forest law enforcement and to develop their own action plans to control deforestation, with clear targets.

The Brazilian ***Forest Code*** is a rather rigid law, requiring every landholder in a given region to maintain a certain percentage of the holding as "legal reserve" with native forest cover. This percentage is 20% in most of Brazil, 35% in the Cerrado sub-region of the Legal Amazon, and 80% in the Legal Amazon. The latter percentage was changed from 50 to 80% by government without any discussion in the legislature in 1996, through a "provisional law" in response to the maxi deforestation of 1995. This percentage has since been maintained through further provisional laws, the last time in 2001. Not only has it been very difficult to enforce these restrictions to private activity, in the Amazon as in all of Brazil, but the rigid application of the percentages "across the board" may have been counterproductive as well. It is noteworthy, however, that the last change to the legal norms in 2001 opened the possibility for trading of the legal reserve obligation among owners (within regional limits) and that the high percentage could be lowered by government to 50% if there is a recognized zoning plan.

Significantly, a new way of thinking on these issues considers the need for making the application of the forest code more flexible, particularly with regard to what should be done in the case of violations of the code ("environmental liabilities"), and to the use of degraded areas, i.e., those illegally cleared. In the case of the Rondônia state zoning of 2000, which had allowed for much lower legal reserve requirements, the federal government came eventually to an agreement with the state that showed flexibility. There are attempts on foot in Congress (by the rural lobby) to change the Forest Code, and government has been wise enough to enter into a dialogue this time rather than blocking all change. A possible agreement, including the powerful National Agricultural Confederation (CNA), was torpedoed by a major NGO; it will take time until a new agreement can be reached on a more flexible Forest Code. Recently, government officials made announcements concerning more flexible treatment of reserve requirements through a one-time exception, but such statements were quickly contradicted by the Minister of Environment.

An intense discussion is currently going on among ministries, private sector and civil society organizations, concerning the consequences of **expansion of sugarcane as feed stock for alcohol fuel** and of soybean and **palm oil** (possibly in a mixed cropping system) as feed stocks for biodiesel. The

agricultural lobby would like see that the planting of sugarcane in degraded areas and of oil palm as part of the "legal forest reserve" in the Amazon be allowed under the law. This may actually be consistent with a policy of making compliance with the Forest Code more flexible, and to make economic use of already degraded areas, but is still vehemently opposed by some groups.

In order to facilitate compliance with the Legal Reserve requirement, the 2001 *revision to the Forest Code* permits compensation of shortfalls of on-farm Legal Reserve Land through the acquisition of "excess" land in native vegetation on other farms or public lands in the same ecosystem and micro-basin and micro-watershed. This opens an important precedent in Brazil, in that it appears to provide the opportunity for landowners to maintain or restore forests not only for purposes of compensation of reserve land, but also for international markets for carbon and biodiversity protection.

The ***Pilot Program to Conserve the Brazilian Rain Forest*** (PPG7), started as an international partnership in 1992, is still alive, implementing projects started after 2000 or extended with bilateral grants. It was instrumental in demonstrating new approaches to natural resource use in rain forests and in strengthening the states´ environmental management capacity. It has lost strength and impetus since 2001, however. The discussion on a second phase during 2001 and 2002 had involved NGOs, World Bank and donors. Since 2003, government proceeded with planning of a new program on its own, which is to be only loosely connected with PPG7, and with little involvement of donors or World Bank. This resulted in the proposal of a "Programa Amazonia", with two major themes (governance and management, sustainable production) and a few initial projects. There are indications that Germany and Norway will be willing to fund parts of the program. It is clear that a follow-up program will be planned and owned by government, and it remains an open question whether and to what degree foreign support is really welcome or necessary. It may always be in the interest of a specific ministry, such as the MMA, to garner support, clout and visibility through international cooperation, but such program may not be a priority of the government as a whole, as demonstrated by PPG7. In general the interest of foreign governments in long-term projects of a structural nature has not been easily compatible with the short term political desires of government.

PPG7 grants were made recently to the indigenous umbrella organization COIAB and the NGO network in the Amazon region, GTA, as well as to the federal government for the completion of the digital cartographic database in the Amazon region and for PPG7 program coordination. A new project to support protection and management of indigenous lands is planned for funding by the German government, possibly on cooperation with the World Bank.

4.3.2 *Setting aside land, closing the frontier and conserving biodiversity through protected areas*

Government policies towards the Amazon appear to pursue a sensible strategy: to reduce the real and perceived amount of land remaining in the Amazon for agricultural use. The main tool in this strategy has been the creation of additional protected areas. (In the case of Acre and Para the creation of protected areas has been part of a larger strategy of agro-ecological zoning.) Setting aside land for conservation reduces both the perception and reality of land availability.

Table 3: Amazon Land Use

Total Amazon Land	100%
Currently protected	**38%**
Indigenous lands	21%
Conservation units	17%
Potentially agricultural	**62%**
Legal reserve	31-50%
Permanently protected areas (APP)	?
Total protected portion of Amazon land	70-90%

Table 3 illustrates that even under the most pessimistic assumption that (i) no new protected areas were to be created, (ii) non-protected areas would be converted to agriculture and ranching, and (iii) the legal reserve on agricultural land were to be reduced from 80 to 50 percent, the Amazon would continue to be 70 percent in protected, native forest status. These data highlight that the existing Brazilian legislation confers, at least in principle, protection of any kind to a relatively high proportion of the Amazon (70-90 %). The major challenge is to ensure that protected areas become and remain effectively protected, and that the "Legal Reserve" is enforced and strategically located.

The addition of new conservation areas established in the Legal Amazon since 2002 of about 470.000 km^2 compares to an expansion of approximately 4.800 km^2 of grain (of which 3.800 $km^2$was soybeans) and 170.000 – 200.000 km^2 of pasture over the same period.

For the first time in Brazil protected areas were created in areas of the rapidly expanding agricultural frontier. This represented a conscious effort by government to (i) impose governance on an area where land-related violence was rapidly growing out of control, and (ii) reduce the perception on the part of farmers and land speculators that new land would continue to be available indefinitely. The perception that land abundance is coming to an end is hoped to increase the price of land, and therefore the intensity of land use—in particular of pasture where higher land prices make it more profitable to renew pasture than to open new lands, and higher land prices lead to better pasture management and higher stocking rates.

A major outcome of this strategy is also that it has brought government and NGOs together on the active frontier. This can be demonstrated with the conflict between development and conservation in the case of the ***federal highway BR-163***, which links Cuiabá in Mato Grosso state to the port of Santarém on the Amazon river in Pará state. The Lula government decided to proceed with paving of this highway, which has economic importance for the export of soybean from Brazil´s center-west region, but recognized at the same time the potential for negative environmental and social consequences in the area of influence of the highway. An inter-ministerial committee oversaw the

elaboration of a plan to prevent or mitigate such negative impacts. It was widely discussed with civil society organizations and social movements in the region, but has only recently begun implementation. The paving of the road (to be funded by a private consortium or a public-private partnership) has not even begun yet. While success of the plan and government actions remains to be seen, it signals nevertheless a willingness of government to consider social and environmental regional impacts of large infrastructure projects and to discuss them with stakeholders, which are more effectively organized in regional stakeholder fora. Much of the creation of new protected areas in the Amazon, particularly along the highway and in the adjoining *Terra do Meio* region, was in response to the threat of deforestation posed by the announcement of the paving project. While the road has still not been paved, the protected areas are already in place, even if mainly on paper. The European Commission made a grant to the Instituto de Pesquisa Ambiental da Amazônia (IPAM) in support of activities for sustainable development in the area of influence of the BR-163.

Technical (planning) skills of NGOs and participation of local communities have complemented the Plan for the Prevention and Control of Deforestation in the Amazon. Many of these NGO activities were undertaken under the umbrella of USAID´s ``Consortia´´ of NGOs, and worked with local communities to create a system of agro-ecological zoning, to support sustainable, forest-based economies, to help farmer´s achieve compliance with the forest code and to attempt to create tradable legal reserve markets.

The **Amazon Region Protected Areas Project** (ARPA), is the largest program currently under way in support of conservation units in Brazil. It is managed by MMA, has begun implementation in 2003, and after some initial delays due to "institutional learning" is now running satisfactorily.

The federal government is also preparing a novel project for GEF funding[19] to address **biodiversity conservation in indigenous lands**, with the cooperation of indigenous peoples. Some 600 indigenous lands occupy some 1.1 million km^2 in the Amazon. According to the National Indian Foundation (FUNAI), some 85% of all indigenous lands suffer from some kind of external interference, sometimes also with the connivance of the indigenous people. As a result of invasions and illegal exploitation of natural resources, and the lack of any environmental planning are deplored, land and vegetative cover are being degraded. Preparation was begun at MMA, but has now been transferred to FUNAI.

As arguments for better support of conservation in and of indigenous lands the following arguments are being made:

- Indigenous lands are among the best preserved, conserve a "socio-biodiversity" and function as barriers to deforestation in the neighborhood of the agricultural frontier;
- Represent 40% of the area considered to be of extreme importance for biodiversity conservation;

[19] Programa Nacional de Proteção, Conservação, Recuperação e Uso Sustentável da Biodiversidade das Terras Indígenas

- Are the basis for socio-cultural sustainability of one of the largest socio-diversities of the planet, involving 215 peoples with their languages, cultures and knowledge of biodiversity; and
- Play an important role for connectivity among conservation units and other protected areas.

The project is being prepared with the active involvement of indigenous organizations. It is a national program, and thus not restricted to Amazon indigenous lands only.

The federal **Law of the National System of Conservation Units** (SNUC), approved in 2000, has finally been regulated by Congress and can thus be fully applied. In 2007, the federal government decided to **reorganize IBAMA**, the federal environmental agency, by splitting off the responsibility for federal conservation units and assigning it to a new agency for parks and reserves called **Chico Mendes Institute**. This decision was widely opposed by IBAMA staff. IBAMA had increased its regular staff through public selection processes, particularly for the Amazon region, but had to deal with the unwillingness of new staff to be assigned to or to remain in that region. The Institute does not yet have a permanent top manager.

4.3.3 CLIMATE CHANGE

Brazil has always been an active participant in international discussion of climate change issues and international agreements. Notably, it was the proponent of the Clean Development Mechanism under the Kyoto Protocol. But it has steadfastly refused to talk about any emission reduction obligations of its own, and has always opposed including conservation of standing forest (or avoided deforestation) in the climate change context. In fact, it had always refused to discuss any international agreements that might involve commitments to conserve primary forest. There appears to be increasing international pressure on Brazil, not only from developed countries but also from countries such as India and China, to do something about forest clearing as a major source of greenhouse gas releases. Brazil is on 4th place worldwide with regard to emissions, and 75% of its emissions are due to land use change, i.e., forest clearing. Brazil is aware that it cannot simply excuse itself from a dialogue on the consequences of rain forest destruction in the Brazilian Amazon within the international community.

Official positions on these matters have thus changed somewhat over recent years, and climate change has become center stage in Brazil´s dialogue with the world on matters of forest conservation. Biodiversity conservation has taken a lesser priority. After all, about 75% of Brazil´s carbon emission stem from land use change (deforestation). Indeed, in 2006, Brazil made a proposal related to voluntary compliance with targets for reduction of deforestation, but continues to refuse any connection with the Kyoto Protocol and carbon emissions. The proposal has links, however, to the price of carbon dioxide reductions on the market. The proposal does not seem to have garnered much international support, except, perhaps, from Germany and Norway.

Brazil maintains that it would not be correct to get paid for something that exists (standing forests) in exchange for continuing carbon emissions elsewhere.[20] It is in discussions, however, on the proposed

[20] This position essentially refuses to acknowledge the possibility of accurately predicting the probability of the forest being deforested in a given period in the future and basing payments on that probability.

fund for avoided deforestation to be set up at the World Bank, and has recently proposed to set up its own national fund for similar purposes. In particular, the government does not agree to compensation payments to landholders in the Amazon, at least if public funds are involved.

Brazil has committed to prepare a National Plan on Climate Change by April 2008, which will not only address mitigation (emission reductions), but also adaptation to climate change, which so far has been excluded from discussion, let alone planning and policies in Brazil.

4.3.4 FOREST CONCESSIONS

The opening of public (national or state) forest lands to private concerns for sustainable exploration of timber and other forest products had been planned already by the federal government before 2003, but was made possible only by the current administration and Congress when the Public Forest Management Law (Nr. 11.284) was finally passed in March 2006 permitting the award of forest concessions and community forest management in designated public forests. The law also created a new agency specifically to plan and manage concessions (the Brazilian Forest Agency, ABF), as well as a National Forest Development Fund to receive part of the concession fees and to support projects in the area of research, technical assistance, training and extension, recovery of degraded lands, sustainable use of forest resources, monitoring, environmental education and environmental protection. The draft bill was hotly debated (and widely misunderstood) in Brazil as a potential sell-out of public forests to private concerns. The first auctions for concessions are currently being held for two lots in national forests in Rondônia. The rationale for this policy is that logging can be done in a sustainable way even in rain forests, that it is an important element of making the standing forest economically attractive, and that providing land without tenure problems under the concessions would give an incentive to the well-intentioned private sector to move out of illegal logging and into the legality of the concessions.

4.4 CHANGES IN AMAZONIAN STATES

Significant changes have taken place in the states since the 2002 update, especially in the three largest Amazon states. Amazonas state has given high priority to finding financial incentives to rural populations to maintain Amazonas forests intact. In Mato Grosso the dialogue between government and NGOs has matured significantly, and a number of municipalities have declared their intention to become fully compliant with Brazil´s environmental and labor legislation. Pará, with substantial NGO involvement, has put in place a system of macro-zoning which includes massive creation of new state protected areas. Only in Rondônia has there been a significant backsliding with regard to biodiversity protection. The following is a state-by-state summary.[21]

4.4.1 AMAZONAS

Amazonas state has the largest areas in protected areas of the Legal Amazon, corresponding to 36 percent of the total. In Amazonas protected areas occupy 44 percent of the state, of which nearly 60 percent are Indigenous territories. Unlike earlier protected areas which were nearly all established prior

[21] This summary relies heavily on Maria Beatriz Nogueira Ribeiro and Paulo Barreto; *Evolução das Áreas Protegidas na Amazônia Legal, IMAZON, December 13, 2007, in draft.*

to the 1980´s and were in the strict protection category, new areas established since 2003 have been predominantly in the sustainable use category. This reflects the program of the governor Eduardo Braga to create a *Zona Franca Verde* (literally Green Free Trade Zone) intended to balance forest preservation with improving the life of forest dwellers. Over the past five years the state has created over 8 million ha of (state) protected areas. Over 70 percent of this area has been given Sustainable Development Reserve Status, and families within these reserves will receive R$50 per month if they limit deforestation to the area required for subsistence family gardens. The state has been active in seeking funding to protect standing forest under voluntary carbon financing schemes, but has not been successful to date; presumably due to the considerable remoteness of most of the state´s forest, which makes it difficult for the state to convince would-be-buyers that in the absence of financial incentives the forests would be converted.

4.4.2 PARÁ

Pará has the second largest area in the Legal Amazon in protected area status, constituting 31 percent of protected land in the Legal Amazon. Nearly 28.6 million ha of new protected areas were created in Para since 2002, of which 10.3 million ha are federal and 18.6 million ha are state protected areas. The latter were created as part of the state government´s zoning exercise, with considerable technical assistance from IMAZON and other NGOs.

Two of the new areas have been earmarked for strict preservation measures. These are the Grão-Pará Ecological Station, which with 4.3 million ha is the largest strict preservation area in the world, and the Maicuru Biological Reserve, with about 1.2 million ha.

These new protected areas will form the world's largest conservation corridor, connecting them to a protected area in Amapá, which includes the Mountains of Tumucumaque National Park, which until now was the largest protected area created in the Brazilian Amazon. This mosaic of protected areas will be further connected, through indigenous people's lands, with other protected areas in the Brazilian states of Roraima and Amazonas. Another two areas being created — the Iriri State Forest and Triunfo do Xingu Environmental Protection Area — have been eagerly awaited since 2004 because they complete the Terra do Meio mosaic of protected areas. [22] A total of 48 percent of Pará is currently in protected status.

It is important to note that over two thirds of all federal protected areas in Pará were created since 2004, and were designed to combine with indigenous lands in the south and southeast of the state to form a barrier against the rapid advance of deforestation from the south and east of the state. These areas were created by the federal government under the ARPA project, and are part of Government´s Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (MMA, 2004) The plan was a response to a series of factors in recent years: (1) increasing violence related to land disputes and

[22] From WWF, http://www.panda.org/news_facts/newsroom/index.cfm?uNewsID=88720

land speculation, (2) the high deforestation rate in 2004, and (3) the announcement of government´s intention to pave the BR 163 highway (Ribeiro and Barreto, 2007)

4.4.3 MATO GROSSO

Mato Grosso is the state in the Legal Amazon with the third largest area in protected status, representing nine percent of the total in the Legal Amazon. Nevertheless it is among the states with the smallest *percentage* in protected status (18 percent). Since 1989, there have been few protected areas created in the state. Nevertheless, in 2006 an important new area was created, the Juruena National Park, with 2 million ha. This park, on the border of Mato Grosso and Pará states, benefitted from the support of ARPA and forms part of the barrier to deforestation discussed above.

Of all the Amazon states, Mato Grosso has the most dynamic agricultural sector. It is also the state with the most advanced system set up to bring farms and ranches into compliance with the Forest Code and to detect illegal deforestation - SLAPR. Recently, Mato Grosso has been the host of good cooperation between NGOs and municipalities with regard to compliance with the Forest Code. In 2003, Blairo Maggi, the second largest soybean grower in the world, was elected governor. During the initial years of his governorship Maggi exhibited a relatively hostile attitude towards NGOs and the environmental sector, including several measures to weaken the SLAPR. Subsequently, he has appeared more willing to enter into a constructive dialogue with environmental NGOs, and has been an active supporter of financial incentives to avoid deforestation, including international transfers.

4.4.3.1 THE SYSTEM FOR ENVIRONMENTAL LICENSING OF RURAL PROPERTIES (SLAPR)

SLAPR is the Mato Grosso System for Environmental Licensing of Rural Properties. The system was put in place in 2000 with the intention of bringing landowners into compliance with the Forest Code. In 2004 the Federal Government initiated an *Action Plan to Prevent and Control Deforestation in the Legal Amazon,* based largely on the SLAPR experience.

The major innovation of the SLAPR system is the geo-referencing of individual farm properties. This makes possible the identification and registration of actual *Area of Permanent Protection* and planned *Legal Reserve* lands, as required under the Forest Code, and subsequent monitoring of compliance through satellite imagery. The contribution of this system, therefore, was to demonstrate the technical and financial viability of a system permitting (i) a compliance plan for legal reserve agreed between landowners and the environmental authority, and (ii) satellite monitoring of the agreement. This technical innovation was tied to a judicial innovation -- the creation of a Single Environmental License (LAU) which simplified the process of licensing of rural properties. However, while technically excellent, it has not been consistently applied to the ultimate consequences for non-compliant land owners, for political reasons.

4.4.3.2 NGO INITIATIVES JOINTLY WITH STATE AND MUNICIPAL GOVERNMENTS

Mato Grosso has a number of biodiversity-related NGO initiatives being carried out with the state and municipal governments. The Nature Conservancy has two projects intended to maximize the linkage of protected areas through helping farmers to comply with the Forest Code. These include the *Cerrado Sustainable Agriculture and Conservation* project in the São Lourenço river basin and the *Lucas do Rio*

Verde Legal project which plans to make Lucas do Rio Verde the first municipality 100 percent in compliance with the Forest Code. The BR-163 and Xingu network works with family farmers in nine projects supported by the PDA-PADEQ (PPG7/MMA). These projects, being implemented in some ten municipalities along BR-163 and in the Xingu watershed, involve both environmental restoration (*e.g.* of gallery forests) and the promotion of environmentally-friendly alternatives to traditional agricultural practices. The network includes the Rural Workers Union of Rio Verde, the Instituto Socioambiental (ISA) with its Y´Ikatu Xingu campaign and the Instituto Centro de Vida.

4.4.3.3 REDD PROPOSAL

The active dialogue among the productive and NGO sectors has permitted Mato Grosso to advance beyond the other states in the area of Reduced Deforestation and Degradation (REDD). A consortium of national and international NGOS (ISA, Greenpeace, Friends of the Earth, IMAZON, IPAM, The Nature Conservancy, Conservation International, Instituto Centro da Vida, and WWF) has worked together with government and the agricultural sector to develop a proposal to reduce deforestation in the state from an average of almost 11,000 km^2/year at present to 1,100 km^2/year by 2013. This proposal has been designed to be coordinated with Brazil´s national emissions proposal discussed above (``Zero Deforestation´´) and involves payments for environmental services, coordination with the SLAPR, strengthening of monitoring and control, and consolidation of the state reserves. The proposal includes a proposal for an additional 4.2 million ha of protected areas and payment for environmental services in priority threatened areas. The overall objective is to achieve zero deforestation in 5-10 years, with annual reductions in deforestation on the order of 1,500 km^2 per year (from a base of 11,000 km^2 annually).

4.4.4 RORAIMA

Roraima has six percent of the total of protected areas in the Legal Amazon, representing 53 percent of the state. All the protected areas are federal, and more than 80 percent are indigenous lands. Only one new conservation area has been created in the state, since 2002, the 260,000 ha National Sustainable Use Forest, Anauá. In 2005, the 1.7 million ha indigenous land Raposa Serra do Sol, which had been demarcated in 1998 was given official legal status. This generated considerable conflict, even among indigenous people, since many farmers, miners, and even state government had made claims on the areas and some indigenous people benefited from private agriculture and ranching (Santilli, 2000; Ribero and Barreto, *op cit).*

4.4.5 RONDÔNIA

Protected areas in Rondônia represent six percent of total in the Legal Amazon and 44 percent of the state´s territory.

Only one protected area has been created since 2002, the 220,000 ha Jacundá National Forest. Rondônia is the site of the first National Forest to be put out to auction, Jamari. This reserve was chosen by the MMA as the first forest to be worked under concession under the new Forest Law because it was best prepared in terms of forest inventory and staff availability and it is in an areas of heavy deforestation pressure. Jamari also has 220,000 ha, but only 96,000 will be open to concessions to

logging companies. Proposals were received from eight logging firms in January, 2008. The concessions will be renewable every three years for up to 40 years. The proposals are evaluated on the bases of economic, social, and environmental criteria. The social-environmental criteria have higher weights in determining the winner than the bid price.

Overall governance in Rondônia has slipped dangerously in the last five years. This is reflected in all aspects of environmental stewardship including tolerance of illegal logging (where licensing has now devolved to the state), and government complicity in invasion of indigenous reserves and conservation reserves. It is particularly concerning in view of the additional environmental pressure expected to be exerted by the Santo Antônio and Jiraú hydropower dams on the Madeira River.

4.4.6 AMAPÁ

Despite containing only 4.1% of the total protected area in the Amazon, Amapá is the State with the largest proportion in protected area status (54.9%). Amapá contains the largest full-protection (IUCN category II) conservation area in Brazil, the 3.9 million ha Mountains of Tumucumaque National Park, created in August of 2002 and included in the ARPA system (it is also the largest tropical park in the world). In addition the state created in July 2006 a 2.4 million ha State Forest. This forest is intended to make up part of the Biodiversity Corridor of Amapá, idealized by the state in 2003, with considerable support from Conservation International, Brazil (Ribero and Barreto, *op cit*), and proposed for GEF support.

4.4.7 ACRE

Largely because of the legacy of Chico Mendes, the leader of the rubber tappers movement assassinated in 1988, and the policy of recent state governments to protect and use the standing forest, Acre has 42% of its territory in sustainable use protected areas. Most federal areas were created soon following Chico Mendes´ death, with the remaining ones created after 2002 with support from the Pilot Program to Conserve the Brazilian Rainforests.

State conservation units have increased significantly under the administration of Governor Jorge Viana, and currently represent 17% of the protected areas of the state. The creation of additional reserves is planned under the State Ecological/Economic Zoning.

4.5 CHANGED LOCAL ACTORS AND ATTITUDES

Recent years have shown a remarkable shift in attitude among the actors concerned with agricultural production, natural resource use and forest conservation. While the past had been characterized mainly by uncompromising opposition of civil society organizations to commercial interests exploiting natural resources in an unsustainable way and a general lack of dialogue, confrontation has given way to a more constructive attitude of working with the private sector rather than against it.

A first example was the campaign launched by the Instituto Socioambiental (ISA) in 2004 to help indigenous peoples in the Xingu Park to defend themselves against the deterioration of the waters of the Xingu river, caused by land degradation, deforestation, cattle ranching and commercial agriculture

all around the Park in the headwaters of the Xingu river. In an unprecedented meeting at Canarana in Mato Grosso State in 2004, organized by ISA together with the indigenous organization ATIX, it was possible to get the main actors outside the Park and the indigenous people to sit around one table and to discuss the damage being done by agriculture and ranching. It was recognized that problems are too large to be solved just by denouncing them and to be left to remedial or punitive action by government. Problems must be solved together with those responsible, not against them. While this has not yet led to a reversal of the situation, a promising beginning has been made. Interestingly, it was much easier for the organizers to work with commercial agriculture and agroindustry (soybean, cotton) than with large cattle ranchers and settlers in land reform colonies. This experience has been made by others subsequently as well. On the other hand, this change in attitude has not included yet smaller national or regional NGOs and social movements.

Another significant event of recent years is the soybean moratorium of July 2006 adopted by Brazilian (and multinational) agroindustry tradings buying soybean. Under the moratorium, the industries commit themselves not to sell soybean from lands that had been illegally cleared. The moratorium has not yet passed a full test of effectiveness, but it has already brought together most major environmental NGOs acting in Brazil, including Greenpeace, CI, TNC, Friends of the Earth, IPAM, WWF, among others.

The readiness of the agroindustry to engage in the moratorium is directly related to the pressure exerted by consumers in European countries importing soybean. The pressure was mobilized by international NGOs, particularly Greenpeace, and had a swift impact on industries in Brazil, concerned about their reputation in major export markets. The action of the Brazilian trade associations (ABIOV and ANEC) greatly strengthen the hand of NGOS such as The Nature Conservancy which were already working in Mato Grosso and Para to help farmers achieve compliance with the Forest Code. With the threat of closing of international markets, these NGOs were seen to be on the side of producers, not ``outsider´´ environmentalist urging unreasonable environmental standards against the economic interest of local communities.

The moratorium is organized in several workgroups, with representatives from both industries and NGOs, that define actions to be taken in the fields of mapping and monitoring, education and information of soy producers, and institutional relations. Importantly, the participants meet with government to express demands for better governance (government presence, land tenure, environmental licensing, law enforcement, etc.).

International NGOs, such as TNC, work also directly with municipal governments and farmers in soybean growing regions to help them get in compliance with the law, particularly with regard to the “legal reserve” requirement and environmental licensing. Farmers, under pressure to adapt to these new circumstances if they want to sell to the four major tradings, are willing to listen and do the necessary to get into compliance.

Still, there has been far less of a dialogue with the sector that causes most of deforestation – the cattle ranchers. Recent government attempts to engage the agricultural lobby in Congress in talks about

changes to the Forest Code had almost become fruitful, had there not been harsh opposition from some parts of the NGO community.

5 Externally Financed Activities.

Table 4 below illustrates the major donor-funded activities protecting biodiversity and forests in Brazil. Note that they have been divided into 5 categories (instruments): (1) parks and reserves, (2) community development and environmental awareness, (3) institutional and economic development on indigenous lands, (4) reserves on private land, and (5) strengthen government environmental institutions. Where a project includes components in more than one category it has been included in each appropriate category.

Table 4: External Funding Support to Biodiversity an Forests in Brazil

Region	Establish and Strengthen Parks and Reserves	Community Development, Environmental Awareness	Indigenous Lands—Institutional and Economic Development	Strengthen Reserves on Private Land	Strengthen Other Government Environmental Institutions
Amazon	ARPA Project (GEF/IBRD, WWF, and KFW) PPG7 - RFT/KFW/EC Ecological Corridors Gordon and Betty Moore Foundation – Andes-Amazon Initiative	IBRD Pará Rural (loan) German GTZ support to IBRD Pará Rural -***proposed*** World Bank Amazonas project - ***proposed*** World Bank Acre project ***proposed.*** German KFW/GTZ Amazonas project—***proposed*** PPG7/EC Support to Sust. Dev in Area of BR-163 (IPAM) GEF/IBRD Integrated Management of Aquatic Resources (Aquabio) PPG7/KFW Demonstration Projects PPG7/RFT Institutional Support to GTA	GEF/UNDP Indigenous Biodiversity Program -***proposed*** GEF/UNDP/Peugeot - Biodiversity Conservation and Sustainable Use NW-MT PPG7/ KFW/GTZ Indigenous Lands Project-***closing*** KFW/IBRD 2nd Indigenous Lands Project-***proposed*** Conservation International /USAID/Norway – Kayapó Indigenous Lands Project PPG7/RFT Institutional Support to COIAB Amazon Conservation Team/USAID Mapping in the Xingu	World Bank Forest Carbon Project -***proposed*** PPG7 - RFT/KFW/EC Ecological Corridors TNC with assistance legal reserve and reserve trading (Responsible Soybean) Santarem	PPG7/RFT/KFW/GTZ strengthen state environmental agencies (SPRN)—***closing***. German KFW/GTZ - strengthen National Forest Service -***proposed*** GEF/IBRD Integrated Management of Aquatic Resources USAID/USFS Strengthen National Forest Service GEF/IBRD Biodiversity Mainstreaming and Consolidation Project- PPG7/RFT Cartographic Base PPG7/RFT/US Directed Research Project II
Cerrado	GEF/IBRD - Sustainable Cerrado-IBRD Conservation International (five projects)	GEF Sustainable Cerrado-IBRD GEF Small Grants (261 projects)-UNDP	GEF Sustainable Cerrado-IBRD GEF/UNDP Indigenous Biodiversity Program -***proposed***	GEF/UNDP Private Natural Heritage Reserves in the Cerrado TNC Legal assistance with legal reserves in Mato Grosso, Goias and Tocantins	GEF/IBRD Sustainable Cerrado GEF/IBRD Biodiversity Mainstreaming and Consolidation Project
Caatinga	GEF/IBRD Caatinga Conservation and Management Project (Bahia and Ceará)	GEF/UNDP Integrated Ecosystem Management for Caatinga Project	GEF/UNDP Indigenous Biodiversity Program -***proposed***	GEF/UNDP Integrated Ecosystem Management for Caatinga Project	GEF/IBRD Biodiversity Mainstreaming and Consolidation Project GEF/IBRD Caatinga Conservation and Management Project (Bahia and Ceará)

Region	Establish and Strengthen Parks and Reserves	Community Development, Environmental Awareness	Indigenous Lands—Institutional and Economic Development	Strengthen Reserves on Private Land	Strengthen Other Government Environmental Institutions
Atlantic Forest	PPG7/RFT/KFW Ecological Corridors German KFW-6 projects. GEF/IBRD Tabuleiro State Park GEF/IBRD Paraná Biodiversity GEF/IBRD Espírito Santo Watersheds Project GEF Rio de Janeiro State Integrated Ecosystem Management GEF São Paulo Ecosystem Restoration of Riparian Forests Conservation International support to conservation units TNC Atlantic Forest Conservation Program WWF Visions of Biodiversity Ecoregions (2 eco-regions)	PPG7/KFW Demonstration Projects	GEF/UNDP Indigenous Biodiversity Program -***proposed***	TNC Legal assistance with legal reserves and reserve trading in Paraná and Santa Catarina	GEF/IBRD Biodiversity Mainstreaming and Consolidation Project

Note: The European Commission has also a global line of grants (Call for Proposals) named: Environment and Sustainable Management of Natural Resources, including Energy, which could be applied in all regions and under all columns above.

From the compilation of external support, the following conclusions may be drawn:

5.1 AMAZON

The Amazon has a worrying imbalance among the five instruments of biodiversity protection. Rural development/environmental awareness projects are increasing dramatically while support to state environmental agencies is disappearing. Support to indigenous areas is strengthening, as is, appropriately, support to the ARPA. Considerable interest is also emerging in helping farmers reconstitute and trade Legal Reserve areas.

While support to parks and indigenous lands can achieve substantial success even without strong state environmental agencies, environmental-economic strengthening of rural communities in the absence of strong state environmental agencies is likely to have little environmental impact. In addition, a program of Legal Reserve trading is impossible without a well-functioning state environmental agency, equipped with a rural cadastre, and capable of land-use documentation of farms, including real-time documentation of deforestation (as under the SLAPR system of Mato Grosso). No environmental agency in Brazil currently has such a capacity.

5.2 CERRADO

Public lands available for new reserves in the Cerrado are extremely scarce. Accordingly, donor activities are concentrated on strengthening existing parks and reserves and attempting to integrate them into corridors created by mosaics of public and private land. Private land for conservation is being sought through private parks and reserves (RPPN), and promoting compliance with Legal Reserve requirements combined with Legal Reserve trading. As in the case of the Amazon, state environmental agencies are not equipped to carry out their responsibilities with regard to Legal Reserve compliance, limiting greatly the potential success of activities working directly with rural communities.

5.3 CAATINGA

Donor activities in the Caatinga appear to be largely seeking and promoting environmentally-friendly activities to reduce rural poverty.

5.4 MATA ATLÂNTICA

The Mata Atlântica has benefitted from many years of German help, creating and strengthening parks and conservation reserves. GEF also plays a strong role in reserve strengthening. TNC has several projects promoting Legal Reserve trading in the area, with the major focus being to help agricultural producers seeking environmentally-demanding export markets, and to create high diversity value off-farm reserves, rather than striving to achieve state-wide compliance with the Forest Code.

6 STRATEGIC ACTIONS AND RECOMMENDATIONS

6.1 STRATEGIC ACTION

The previous section described briefly the activities of donors and the balance of instruments they are employing. This section builds on this information to explore how USAID can complement and catalyze these activities to make its program as effective as possible. Table 5 highlights the relationship and/or dependence of these instruments on each other.

Table 5: The Mutual Dependence of Environmental Activities

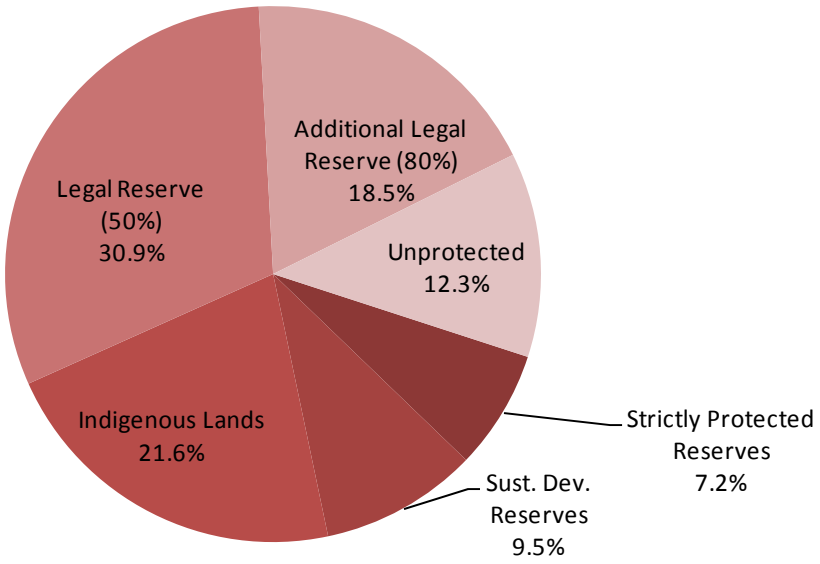
	Conservation units	Indigenous lands	Rural sustainable development	Private reserves (RPPN, APP, RL)
SEMA capacity and State support	Critical for production forests, state parks and ecological reserves.	Not critical	Essential to ensure incentives for intensification of land use.	Critical responsibilities under law. Must have farm cadastre, farm plan, deforestation monitoring, and legal reserve monitoring system
Conservation units	---	Indigenous lands combined with conservation units are critical for connectivity and the formation of corridors	Community forests and extractivism may play a role in creating corridors. In theory, farm intensification may reduce pressure on reserves. Few examples of successful economic options to date.	Combining conservation reserves with private reserves is important for creating corridors in all biomes. It is critical for connectivity outside the Amazon, where few public lands are available. Major incentive for compliance with the Forest Code on private lands is certification for export markets.
Indigenous lands	__	---	Same as above.	Same as above
Rural Sustainable development	__	__	__	All rural sustainable development projects should give priority to compliance with the forest code. Community forests could form reserve lands in a program of trading.

Strategically, state environmental agencies play a key role in protecting state reserves, monitoring production forestry, monitoring and licensing deforestation on private lands, and in facilitating legal reserve trading. Private reserves and indigenous lands are important for providing connectivity among conservation units. Only strengthening federal conservation units and indigenous lands is independent of the competence of the state environmental agency. The use of forest concessions is an instrument to prevent public land from being alienated to private, agricultural use. Properly managed forests can be important to provide connectivity in a mosaic of protected areas and provide needed income to local communities.

This report recommends focusing USAID´s program on getting effective compliance with the Forest Code in private lands, and protection of nature reserves and indigenous lands. Combining effective

compliance with legal reserves on private land with effective protection of existing protected areas conservation units and (indigenous lands) guarantees the protection of at least 70 – 90 percent of Amazon lands[23] (see chart) There are several reasons to focus on these land use categories. First, this is where the big numbers are—31-50% of the Amazon is potentially protected in private lands, 22% in indigenous lands, and 17% in conservation areas. Second, government institutions exist to protect these areas -- USAID should strengthen government´s existing framework, not work only outside of it.

Figure 4: Public and Private Protected Lands in the Amazon



6.2 RECOMMENDATIONS

This report recommends focusing USAID´s actions on the following topics: (i) strengthen state environmental institutions, (ii) help implement private reserves, (iii) strengthen conservation reserves, (iv) strengthen indigenous reserves, and (v) others.

6.2.1 STRENGTHENING STATE ENVIRONMENTAL AGENCIES

Given the key importance of state environmental agencies, what role might USAID play to improve their effectiveness, in particularly in view of USAIDs historical preference for working through NGOs, rather than directly with government?

[23] This is a minimum because it assumes that all land that is not currently protected goes into agricultural use. The range of 70-90% reflects the possibility of the reserve land requirement of 80% being reduced to 50% either through new legislation of through adoption of state zoning legislation acceptable to CONAMA.

6.2.1.1 MAKE A STRONG STATE ENVIRONMENTAL AGENCY POPULAR

Weakness of the state environmental agencies, especially in the Amazon is a reflection of the generally weak state of governance in frontier areas. Immaturity of government is only part of the explanation, however; in some states efforts to strengthen environmental institutions is strongly resisted by local interests, especially the agricultural lobby. Indeed, the stronger and more dynamic the agricultural sector, the more successfully it has resisted.

This dynamic is changing, however, for the reasons outlined in Chapter 2 of this report: international markets demand evidence of compliance with Brazil´s environmental and social legislation; where farmers seek compliance with the Forest Code, Legal Reserve markets provide income-earning opportunity for some farmers and cost savings for others; and finally, carbon markets are emerging. For any of these opportunities to become a reality, however, environmental agencies must have farms registered in geo-referenced cadastres, and must know the status of Reserve Areas and Areas of Permanent Protection. In addition a credible real-time deforestation monitoring system must be in place. It is noteworthy that this essentially describes the SLAPR system partially implemented in Mato Grosso.

6.2.1.2 STRENGTHEN STATE AGENCIES THROUGH NGO COOPERATION

Given USAID´s preference to work through NGOs, how can USAID strengthen the state agencies? One answer is to scale-up ongoing work. TNC is already strengthening Mato Grosso´s legal reserve system; expanding the state´s farm cadastre, and helping farmers to geo-reference their land and register their legal reserve compliance plan. In addition IMAZON is helping with real-time deforestation monitoring, including issuing a periodic, independent report detailing the progress of the SLAPR system in restricting deforestation to legal burning on non-reserve lands. TNC is also creating a farm cadastre and farm plans for the Santarem region. This work does not seem be coordinated with the state environmental agency, however.

In summary, taking advantage of the new opportunities created by globalization will require that state environmental agencies can fulfill their responsibilities under the Forest Code. IMAZON and TNC are already showing the way through promising cooperative agreements with SEMAs. These activities should be expanded with a more concerted effort directed to strengthening attributions of the SEMAs such as the construction and maintenance of geo-referenced cadastres of farmer holdings.

6.2.2 PROMOTE CREATION OF PRIVATE RESERVES

6.2.2.1 STRENGTHEN FARMER CAPACITY TO COMPLY WITH THE FOREST CODE.

Existing activities to help farmers to comply with the Forest Code, essentially with the legal reserve requirement and the conservation of permanently protected areas, should be expanded, including help with geo-referencing farm plots, development of farm plans, and coordination with the state environmental agencies.

6.2.2.2 PAYMENTS FOR ENVIRONMENTAL SERVICES (ZERO DEFORESTATION PROPOSAL)

As emphasized above, payments for environmental services are critically strategic for two reasons. First they directly create incentives to producers to leave private land in forest. Second, because they bring benefits to farmers, and can only function within the context of a functioning state environmental agency--fully equipped with a geo-referenced rural cadastre and farm plans--they bring political support for a strong state environmental agency. In addition, tradable Legal Reserves permit off-farm reserves to be organized to maximize biological connectivity, as well as lowering costs to farmers of compliance with the Forest Code.

As discussed above, NGOs are already working to make this a reality, with the Consortium of NGOs working on the Mato Grosso proposal (ISA, Greenpeace, Friends of the Earth, IMAZON, IPAM, The Nature Conservancy, Conservation International, Instituto Centro da Vida, and WWF) well in the lead. TNC has taken the lead with the private sector, and land owners. USAID could strengthen support to these activities as well as bring experience from elsewhere.

6.2.3 STRENGTHEN CONSERVATION RESERVES

As discussed above, some 470,000 km^2 of new state and federal protected areas have been declared since 2002. This dramatic increase has not been accompanied by an increase in the already weak capacity for management and control of protected areas. Strengthening will be particularly critical in areas that have been created to control the expansion of the agricultural frontier along BR163.

Both the establishment and the running of conservation units require staff, skills and management capacity. All three may be in short supply. A recent report by The Nature Conservancy highlights the staffing shortage in the Brazilian park system. While Brazil has, for example, double the area of parks and reserves of the United States, it has only about one tenth of the number of staff in the US[24]. USAID cannot provide staff, but it may help with strengthening the management capacity.

Co-management with NGOS is another solution, and is consistent with USAID´s preferred funding mode. The concept of co-management, encourage by the World Bank under the National Environmental Program in the 90´s did not find fertile ground in IBAMA. At present there are, to the authors´ knowledge, only two co-managed national parks.

6.2.4 SUPPORT THE CHICO MENDES INSTITUTE.

Finally, the creation of the Chico Mendes Institute as Brazil´s "National Park Service" has so far occurred more on paper than in reality. Building up a new institution, with a new spirit, mission, agenda, structures and processes, warrants support. No other foreign cooperation source appears yet to have offered assistance. In spite of somewhat disappointing experiences in the past, USAID may still be able

[24] Ministry of Environment, MMA, Série Áreas Protegidas No. 6 - Pilares para o plano de sustentabilidade financeira do sistema nacional de unidades de conservação, 2008.

to get similar US institutions to cooperate, or to offer support to other organizations that could help the Institute to build its new identity and strength.

6.2.4.1 SUPPORT THE STATES IN MANAGING STATE CONSERVATION UNITS

Two thirds of new conservation units since 2002 were created by Amazonian states, not the federal government. There is little actual support by donors to management of state conservation units in the Amazon (whereas there is good support by Germany´s KfW in the Atlantic Forest Region). There may also be less resistance by state agencies and NGOs alike to cooperation or co-management in state conservation units than in Federal areas. Thus USAID support to state management of conservation units is recommended.

6.2.4.2 STRENGTHEN THE NEWLY ESTABLISHED NATIONAL FOREST SERVICE

Brazil´s newly-created Forest Service has a staff of only 20 people. The USFS has already signed an interagency agreement with USAID to provide much-needed support. Additional support will be necessary, much of which could be provided through USAID´s traditional NGO partners in the forestry area, such as TFI, IMAZON, and IPAM, as well as other NGOs with a strong grass-roots presence.

Additional needs include both training in silvicultural techniques to community and logging companies, and more in-depth assistance to community production and extractive forests.

To date, training in silvicultural techniques has largely been limited to low-impact logging. In the new environment of long-term concessions additional applied, practical training will be demanded for simple post-harvest silvicultural treatments such as enrichment planting.

The new forest policy envisions a significant role for community forests. At present communities are unprepared for the roles they are expected to play under a system of community-based concessions. If this system is to become a reality, government and donors must revive support to community forestry. This includes mobilizing municipalities and assisting them to play a role in monitoring and surveillance of concession activities, as well as assisting communities with planning for sustainable management of both timber and non-timber products. This might include fostering exchange of experiences and knowledge on community forestry among Brazilian communities, as well as between Brazil and other countries which have a long and successful tradition of community forestry (such as Mexico).

Finally, it should be mentioned that additional long-term studies need to be carried out to inform the management of non-timber forest products such as Andiroba. At present communities have virtually no scientific information upon which to base their efforts to manage sustainable harvests.

6.2.5 STRENGTHEN INDIGENOUS RESERVES

In view of their dominance in protected land use, strengthening the consolidation of Indigenous Lands is of priority importance. This includes strengthening both their capacity to resist invasion and to make sustainable economic use of their forests. USAID can work through existing partners to strengthen indigenous organizations for effective participation in the proposed indigenous biodiversity project to be funded by the GEF (“GEF Indigena”).

6.2.6 OTHER STRATEGIC ACTIVITIES

6.2.6.1 DISSEMINATE THE IMPACT OF AMAZON DEFORESTATION ON BRAZILIAN AGRICULTURE

As mentioned above, current scientific evidence, much of which has been developed by Brazilian scientists, indicate that increased deforestation in the Amazon threatens rainfall patterns in Brazil´s breadbasket in the Centerwest and South. Although this information makes occasional appearances in the press, a concerted effort to disseminate it widely could build wider support from the rural sector for reduced deforestation in the Amazon. USAID could reinforce this strong national argument against deforestation through supporting INPA, INPE and Brazilian scientist/ spokespersons such as Antonio and Carlos Nobre and others associated with LBA-ECO. Support could include publishing articles and producing material for targeted dissemination.

6.2.6.2 BIOFUELS

Assistance to biofuels could be an important area for USAID support, especially given the diplomacy of US-Brazil cooperation in this area. USAID could assist with both the politics and production of biofuels from the Amazon. The politics concerns the policy dialogue on use of degraded areas for oil palm for biodiesel. Here the policy options and their environmental implications need to be carefully established, and the appropriate changes, to the current Forest Code, if any, scientifically established. This is the type of policy analysis which IMAZON or IPAM has been very successful at carrying out and disseminating in the past.

In addition, USAID support to Brazilian biofuels could include assistance with organization of smallholder dendê producers and biodiesel plants, perhaps through indirect (NGO) support to the Ministry of Agrarian Development (MDA).

6.2.6.3 CONTINUE TO SUPPORT *THINK AND DO TANKS*

No donor-financed activity has been more strategically import in Brazil than USAID´s long-term support to Brazilian *Think and Do Tanks*-- notably IMAZON and IPAM. These institutions have been critical in bringing science-based analysis to the Amazon. For a civil society in search of environmentally-friendly development, they ensure an informed and rational public debate on the options. For government they have become trusted and valuable partners in the development of public policies. As a result of their success, both these institutions have broadened their funding base. Nevertheless USAID should continue to ensure their adequate funding.

ANNEX: EXTERNALLY-FINANCED ACTIVITIES

Donor	Project/Grant/Loan	Agency	Focus
Germany	Closed: SPRN technical cooperation in Acre, Amazonas and Pará	GTZ	State Environmental management, zoning
	Support to Pará Rural project – discussed	GTZ	Land tenure regularization, sustainable development at municipal and local level, institutional strengthening
	Amazonas Project – planned	KFW	Possibly support to conservation units
	Forest sector support - planned	KFW	Support to the Brazilian Forest Service
	KfW – 6 state projects in the Mata Atlântica	KFW	Support to establishment and management of state protected areas
European Commission	Call for Proposals: Environment and sustainable management of natural resources, including energy	EC	Securing land tenure and forest rights of local communities, dev. and implementation of inst. arrangements and land use policies for forest conservation and sustainable management. Pilot activities supporting pro-poor financing mechanisms for forest conservation in the context of combating climate change Improving transparency and accountability and contribution of NGOs, private sector and local authorities in complementing the role of governments in forest law enforcement, governance and trade; Transfer and deployment of new technologies for climate change mitigation, including capacity-building for the effective participation by partner countries in the Clean Development Mechanism. Promoting dialogue with partner countries, especially emerging countries, in support of the development and implementation of a global and comprehensive post-2012 climate change agreement. Allows the applicant to supply small grants for a limited amount to local non-profit making organizations. Conserving biodiversity in support of the Convention on Biological Diversity [CBD] Program of Work on Protected Areas, as well as capacity building for Protected Areas' work under Multi-lateral Environment Agreements [MEAs] and at awareness raising activities. Preferably to contribute to poverty reduction of the population that lives in and around protected areas. Strengthen community-based institutions for natural resource management, particularly land, management of common property resources. Land tenure systems as enabling frameworks at

Donor	Project/Grant/Loan	Agency	Focus
			local level for farmers and other stakeholders to adopt improved sustainable land use and sustainable management of natural resources. Document and stimulate successful experiences where secure land tenure schemes encourage investments in land improvements and prevented resource conflicts.
	Support to activities for sustainable development in the area of influence of the BR-163 Grant to IPAM	IPAM	Research, education and institutional strengthening , towards an alternative development model emphasizing land use management , investments in health and education, improved marketing, emerging markets for environmental services
GEF	ARPA project (with WWF and KfW)	IBRD	Support to establishment and management of protected areas in the Amazon "identify and create new strict protected areas and develop long-term sustainable management tools and mechanisms for effective protection within all Amazonian strict protected areas" Also sustainable development reserves (RESEX)
	Tabuleiro State Park, Santa Catarina	IBRD	Support to state conservation units
	Parana Biodiversity Project	IBRD	Support to state conservation units
	Integrated Ecosystem management for the Caatinga Biome	UNDP	Implementation of a matrix of local demonstrations, training for replication, sustainable use of natural resource use, poverty reduction, mitigation of carbon emissions, reforestation, reduced deforestation, biodiversity conservation through increased integrity and conservation of ecosystem at the landscape level, eco-corridors, protection of water courses, reduced soil degradation and desertification.
	Caatinga Conservation and Management Project – Ceará and Bahia states	IBRD	
	National Program fro Protection, Conservation, Recuperation and Sustainable Use of the Biodiversity in Indigenous Lands (GEF Indígena) - proposed	UNDP	National scope, with involvement of indigenous organizations, FUNAI.
	GEF Small Grants Program – Cerrado (261 sub-projects?) Launched in 1992, SGP supports activities of non-governmental and community-based organizations in developing countries towards climate change abatement, conservation of biodiversity, protection of international waters, reduction of the impact of persistent organic pollutants and and prevention of land degradation while	UNDP	Sustainable use of natural resources and biodiversity, biodiversity conservation, water management, community organization, climate change adaptation, land degradation

Donor	Project/Grant/Loan	Agency	Focus
	generating sustainable livelihoods. Funded by the Global Environment Facility (GEF) as a corporate programme, SGP is implemented by the United Nations Development Programme (UNDP) on behalf of the GEF partnership, and is executed by the United Nations Office for Project Services (UNOPS).		
	Mainstreaming and Institutional Consolidation Project (recently approved) Designed to promote mainstreaming of biodiversity and institutional strengthening at national level in key government and private sector planning strategies, investments, and practices. The project will work to analyze existing constraints to biodiversity mainstreaming and will propose policy measures that will facilitate and promote the mainstreaming of biodiversity into different public and private sectors.	IBRD	Objective: to promote mainstreaming of biodiversity and institutional consolidation at national level. Project outcomes: • to mainstream the conservation and sustainable use of biodiversity into select economic sectors at Federal and State Government levels; • to mainstream the conservation and sustainable use of biodiversity in the private sector; • to support the consolidation and strengthening of Brazilian institutions working on the development and implementation of biodiversity policy; • to provide critical biodiversity information for policymaking through the monitoring of trends in biodiversity components and the assessment of the sustainability of production and consumption of biodiversity goods and services.
	National Biodiversity Strategy Project (closed)	UNDP	elaboration of the National Policy on Biodiversity, with the establishment of a legal framework; realization and publication of strategic studies on issues related to Brazilian biodiversity; promotion of information exchange; elaboration of National Reports to CBD; and elaboration of a Proposal for the Implementation of the National Policy involving the Federal Government, State Secretaries of Environment and Society
	Sustainable Cerrado Initiative, Tranche 1	IBRD	Promote the increase of biodiversity conservation and improve the environmental and natural resource management of the *Cerrado* biome through support for appropriate policies and practices • Fully developed *Cerrado* conservation policy framework and at least two policy components adopted and contributing to biodiversity conservation in over 20 percent of the *Cerrado* biome. • Increased biodiversity conservation in at least four priority regions of the *Cerrado* biome.
	Integrated Management of Aquatic	IBRD	Mainstreaming of a multi-stakeholder,

Donor	Project/Grant/Loan	Agency	Focus
	Resources in the Amazon (AquaBio) lower and middle Negro river (high fishing pressure and presence of ornamental fisheries trade); (b) headwaters of the Xingu river (impacts of land degradation on freshwater ecosystems); and (c) lower Tocantins river, below the Tucuruí hydropower dam.		integrated management approach to the conservation and sustainable use of Freshwater biodiversity conservation in public policies and programs in the Brazilian Amazon River Basin Component 1 - Planning and Public Policy; Component 2 - Demonstration Activities; Component 3 - Building Capacity
	Establishment of Private Natural Heritage Reserves in the Brazilian Cerrado	UNDP	Support to private reserves
	Promoting Biodiversity Conservation and Sustainable Use in the Frontier Forests of Northwestern Mato Grosso (with support from Peugeot, France) - closed?	UNDP	- Sequester 7.32 million metric tons of CO2 - Promote biodiversity by planting more than 30 native species - Integrate the project into the local socio-economic environment to ensure sustainable development
USAID **(parts of regional ABCI program)**	Challenging the Advance of Deforestation in the SW Brazilian Amazon (Amazonas State)	Consortium	Strengthen environmental governance, empower local stakeholders to deal with the socio-environmental problems associated with deforestation
	Consortium Indigenous Landscapes: Strengthening Indigenous Organizations in the Amazon Basin -only the Brazilian parts	Consortium	Strengthen environmental management of indigenous lands by building the capacity of indigenous and partner organizations to plan, manage and protect these lands
	Consortium Environmental Governance in the MAP Region	Consortium	Reduce the loss of biodiversity and environmental services, and serve as an example for international collaboration on transboundary issues in the Amazon Basin
World Bank	Pará Rural	IBRD	Land tenure regularization, zoning, sustainable (mainly agricultural) development at municipal and local level, institutional strengthening
	Amazonas Project (proposed)	IBRD	-
	Acre Project (proposed)	IBRD	Community development, health, education
	Carbon Project Mato Grosso (proposed?)	IBRD	-
PPG7	Demonstration Projects Amazon and Mata Atlântica	KFW	
	Ecological Corridors (RFT/IBRD to leave project in 2008)	KFW and EC	Amazon and Atlantic Forest biodiversity conservation, support to corridors and conservation units
	Indigenous Lands Project (follow up project planned, KfW with World Bank)	KFW, GTZ	Demarcation, post-demarcation vigilance and protection, consolidation, management of indigenous lands and their natural resources
	RFT Support to COIAB Institutional Development	RFT/G7	Institutional strengthening NGOs
	Indigenous Demonstration projects (PDPI)	KFW,	Better quality of life for Amazon indigenous,

Donor	Project/Grant/Loan	Agency	Focus
		GTZ	strengthen economic, social and cultural sustainability, natural resource conservation
	RFT Support to GTA Institutional Development	RFT/G7	Institutional strengthening NGOs
	Support to Pilot Program Coordination at the Ministry of the Environment	RFT/G7	Institutional strengthening Government
	Amazon Cartographic Base	RFT/G7	Consolidate official digital cartographic data base for all of the Amazon (INGE/DSG)
	Science II Project	US and RFT	Directed Research in the Amazon, scientific and technological knowledge for conservation of rain forest and rational natural resource use
Conservation International	Biodiversity Corredors: Amapá, Southern Amazon Ecotones, Southern Amazon, Central Amazon.	CI	
	Kayapó Indigenous Lands Project , with USAID and Norwegian support		Vigilance, alternatives for incoming generation, cultural documentation, capacity building, with FUNAI, Instituto Raoni, 12 indigenous communities
	Support to conservation units in the Mata Atlantica (10 projects), to UCs in the Cerrado (5 projects), 3 RPPN in Pantanal, 5 projects in marine ecosystems	CI	
TNC	Amazon and Cerrado: Responsible Soybean, helping farmers to comply with the Forest Code	TNC	Work with farmers on compliance with Forest Code (legal reserve, permanent protection areas, etc.)
	Green Highways Consortium (with IPAM, ISA and others, supported by USAID)		Promote sustainable development along major highway corridors, governance, small farmer mobilization and involvement
	Ethno-mapping with indigenous peoples		
	Atlantic Forest Conservation program, five sub-regions, protection and creation of public conservation units, connectivity, creation of private reserves, reforestation of degraded areas, financial mechanisms for sustainability		
WWF	Amazon program: • Conservation of biodiversity and parks • Sustainable use of natural resources • Env. Education and communication In two eco-regions: Southeast Amazon (Acre, Rondônia part of Amazonas) and *Várzeas da Amazônia* (floodplains along Amazonas and Solimoes Rivers)		
	Atlantic Forest Program Protection of remaining Forest fragments, suport to creation and management of conservation units. Forest landscape rehabilitation		

Donor	Project/Grant/Loan	Agency	Focus
	Eco-regional visions of biodiversity with participation of diverse stakeholderes indicate priority áreas for prtection, management or recuperation: Eco-region Forests of Alto Paraná and Eco-region Serra do Mar		
Moore Foundation	Largest private donor to Amazon conservation and research, more than $200 million to projects in the region since 2001. The goal of the foundation´s Andes-Amazon Initiative is to conserve the Amazonian forests, which provide habitat for biodiversity and regulate the regional climate cycle. Much of Amazon research in recent years has been funded to some degree by the Moore Foundation. Conservation International, World Wildlife Fund, the Field Museum, the Wildlife Conservation Society, the Amazon Conservation Association, Woods Hole Research Center, Instituto Internacional de Educação do Brasil, Instituto Socioambiental, and the Amazon Conservation Team have received grants since 2001.		Effective management of 370 million ha of forested landscapes is needed to maintain the climatologic function of the Amazon Basin and protect the region's biodiversity distributed across eight major eco-regions and 13 major watersheds in order to preserve the region's long-term ecological viability. The 370 million ha represents 45 percent of the region's 815 million hectares of rainforest and is considered a threshold below which the Amazon rainforest ecosystem may tip towards a radically different landscape dominated by dry savanna. Strategies include creating and consolidating an appropriate set of protected areas, building capacity among local organizations and decision-makers, stimulating appropriate policy, and securing long-term financing to maintain the protected areas. Specific grants are, among others: • Biodiversity Conservation Investment Database (FUNBIO) • Amazon Headwaters Initiative (WWF) • Improving Management of Large Scale Conservation Programs (WWF) • Amazon Protected Area Project (ARPA, through WWF) • Greater Xingú Complex Conservation (Phase II) • Amazonia Socioambiental: Consolidation of Protected Areas in the Brazilian Amazon (ISA) • Protected Area Monitoring Database (ISA) • Rio Negro Basin Protection (ISA) • Sustainable Forest Management in Brazil (IFT) • Basin Policy Analyses Economics Training in Brazil (Conservation Strategy Fund) • Consolidation of State Forests and monitoring of protected areas in the Brazilian Amazon (Pará, IMAZON)